VP-23W1/VP-25W1 User Manual

Version 1.01 beta1, June 2009

Service and usage information for

VP-23W1

VP-25W1

Written by Hans Chen

Edited by Anna Huang

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1. INTRODUCTION

ViewPAC combines WinPAC, graphic display and keypad in one unit. It equips a PXA270 CPU (520MHz) running Windows CE.NET 5.0 operating system, variant connectivity (USB, Ethernet, RS-232/485), 3 slots to expand I/O modules, 3.5”/5.7” TFT LCD and a rubber keypad.

Its operating system, Windows CE.NET 5.0, has many advantages, includes hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level, achievable deterministic control and low cost. Running Windows CE.NET 5.0 in the ViewPAC gives it the ability to run PC-based control software such as Visual Basic.NET, Visual C#, Embedded Visual C++, SCADA software, Soft PLC …etc.

Compared to traditional IPC + PLC solutions, ViewPAC reduces overall system cost, space and gives you all the best features of IPC and PLC

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1.1. Features

Software Features

➢ Windows CE .Net 5.0 Inside

Most of the popular features in MS software are included, such as

1. FTP Server
2. HTTP Server
3. ASP (Java script, VB script)
4. SQL Server Compact Edition 3.5
5. Compact .Net Framework 2.0

➢ Remote Maintenance via FTP Server and VCEP Software

The FTP server is used for uploading applications or downloading data. And VCEP is designed for managing the ViewPAC. VCEP can synchronize every movement (screen, keyboard and mouse actions) between the PC and the ViewPAC via the Ethernet. By using the FTP server and VCEP, you can update and manage the ViewPAC remotely via the Ethernet.

➢ Built-In OPC Server (Quicker)

Quicker is an OPC server and SCADA software can easily integrate I/O modules through it. Furthermore, it also provides a library which users can use to develop their AP by eVC, C# or VB.Net.

Quicker not only supports I/O modules in local slots, but also supports remote I/O modules with the following protocols via the RS-232/485 or Ethernet:

1. Modbus/RTU
2. Modbus/ASCII
3. Modbus/TCP
4. DCON

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➢ Rich Software Solutions

On the ViewPAC, ICP DAS provides the following software solutions to fit in different applications.

1. Visual Studio .Net 2003/2005/2008 and eVC solution:

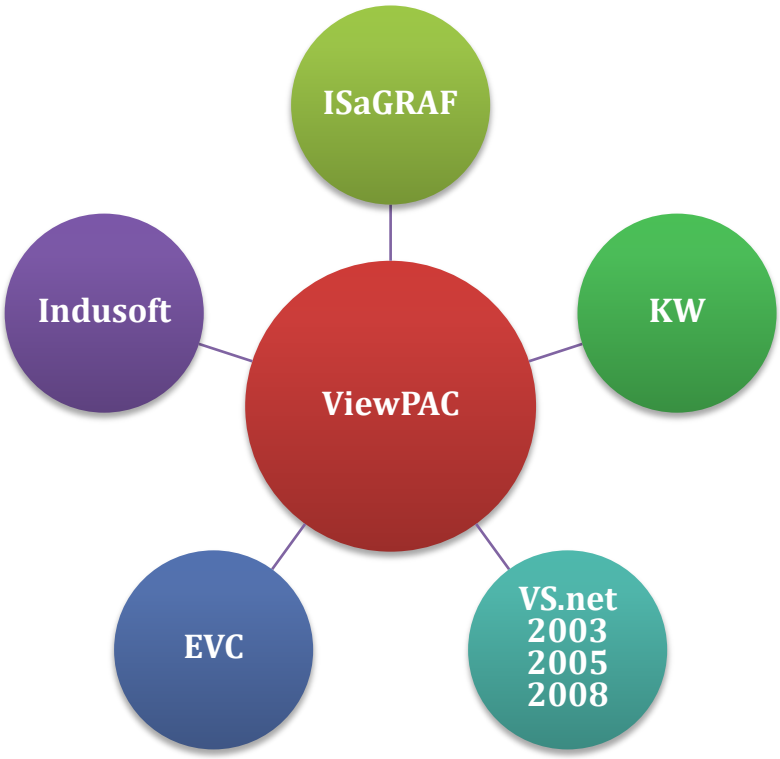
SDK as well as demo programs for C#, VB.Net and eVC are provided.

2. SoftPLC solution:

A. ISaGRAF supports IEC61131-3 languages, Ladder Diagram (LD), Structured Text (ST), Function Block Diagram (FBD), Sequential Function Chart (SFC), Instruction List (IL), and Flow Chart (FC).

B. KW-software supports IEC61131-3 languages and HMI features.

3. SCADA solution: Indusoft provides simple “drag and drop”, “point and click” developing environment for HMI and SCADA applications.



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Hardware Features

- **PXA 270 CPU (32-bit & 520 MHz)**
- **IP44 Compliant Front Panel**
- **3.5”/5.7” TFT LCD (5.7” LCD is with Touch Panel)**
- **Rubber Keypad with 24/6 Keys**
- **Audio with MIC-In and Line-Out**
- **64-bit Hardware Serial Number for Software Protection**
- **3 Slots for High Profile I/O Modules**
- **Rich I/O Expansion Ability**

    1. Ethernet
    2. RS-232/422/485
    3. FRnet
    4. CAN bus

- **Dual Battery Backup SRAM (512 KB)**
- **One Ethernet Port**
- **2 Serial Ports (RS-232, RS-485)**
- **Operating Temperature: -20 ~ +70 °C**

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1.2. Specifications

System Software	VP-23W1	VP-25W1
OS	Windows CE .NET 5.0	
.Net Compact Firmwork	2.0	
Embedded Service	FTP server, Web server (supports VB script, JAVA script), Embedded SQL server	
SDK Provided	Dll for eVC, Dll for Visual Studio.Net 2003/2005/2008	

CPU Module	VP-23W1	VP-25W1
CPU	PXA270 or compatible (32-bit and 520MHz)	
SRAM	128 MB	
Dual Battery Backup SRAM	512 KB (for 5 years data retention)	
Flash	96 MB (64 MB for OS image, 31 MB for built-in Flash disk, 1 MB for registry)	
EEPROM	16 KB (data retention: 40 years; 1,000,000 erase/write cycles)	
Expansion Flash Memory	microSD socket with one 1 GB microSD card (support up to 16 GB microSDHC card)	
RTC (Real Time Clock)	Provide seconds, minutes, hours, date of week/month; month and year, valid from 1980 to 2079	
64-bit Hardware Serial Number	Yes	
Dual Watchdog Timer	Yes	
Rotary Switch	Yes (0 ~ 9)	

Communication Interface	VP-23W1	VP-25W1
Ethernet Port	RJ45 * 1, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDIX, LED indicators)	
USB 1.1 (host)	1	
COM 0	Internal communication with the high profile I-87K series modules in slots	
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside); 2500 V_{DC} isolated	
COM3	RS-232 (TxD, RxD, CTS, RTS, DSR, DTR, CD, RI and GND); Non-isolated	

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MMI (Main Machine Interface)	VP-23W1	VP-25W1
LCD	3.5” TFT (Resolution 320 x 240)	5.7” TFT (Resolution 640 x 480)
Touch Panel	-	Yes
Rubber Keypad	24 Keys	6 Keys
Audio	Microphone-In and Earphone-Out	
LED Indicators	3 Dual-Color LEDs (PWR, RUN, LAN1, L1, L2, L3; L1 ~ L3 for user programmable)	

I/O Expansion Slots	VP-23W1	VP-25W1
Slot Number	3 (for high profile I-8K and I-87K modules only)	
Hot Swap *Will be available	Yes (for high profile I-87K modules only)	

Mechanical	VP-23W1	VP-25W1
Dimension (W x L x H)	182 mm x 158 mm x 125 mm	
Ingress Protection	Front panel: IP65	

Environmental	VP-23W1	VP-25W1
Operating Temperature	-20 ~ +70 °C	
Storage Temperature	-30 ~ +80 °C	
Ambient Relative Humidity	5 ~ 90% RH, non-condensing	

Power	VP-23W1	VP-25W1
Input Range	+10 V ~ +30 V	
Isolation	1 kV	
Capacity	2.5 A, 5 V supply to I/O expansion slots	
Consumption	7.2 W (0.3 A @ 24 V)	

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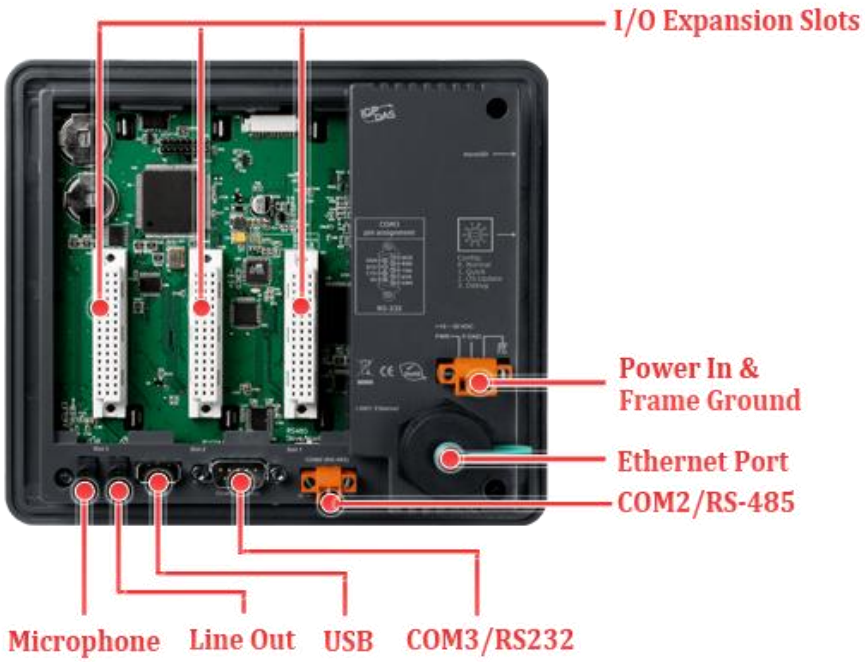
1.3. Overview

VP-23W1



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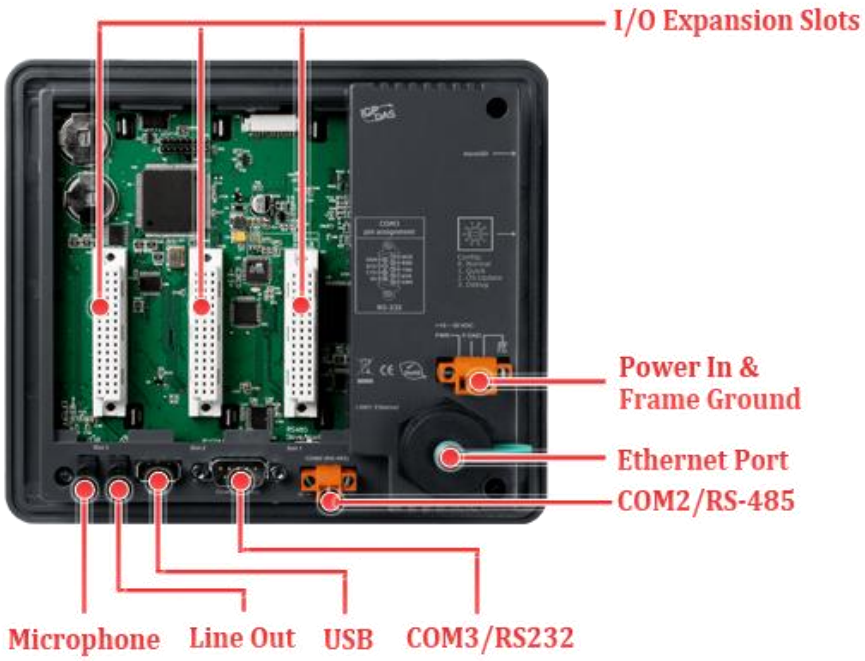
VP-25W1



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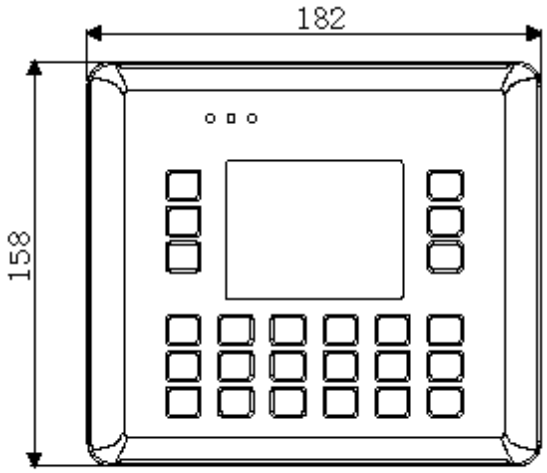
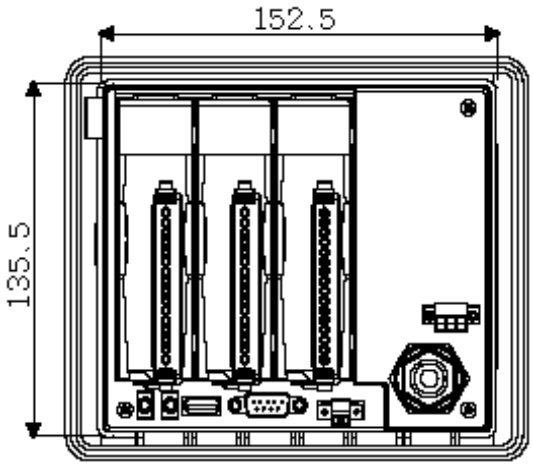
1.4. Dimension

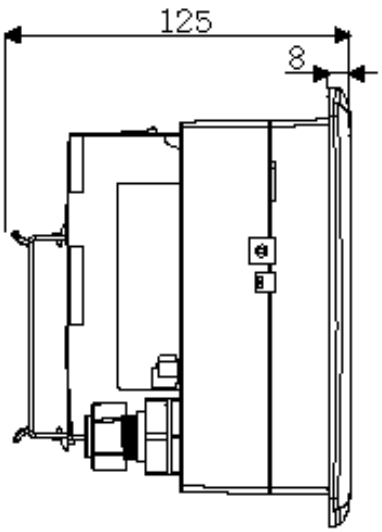
VP-23W1 Unit: mm



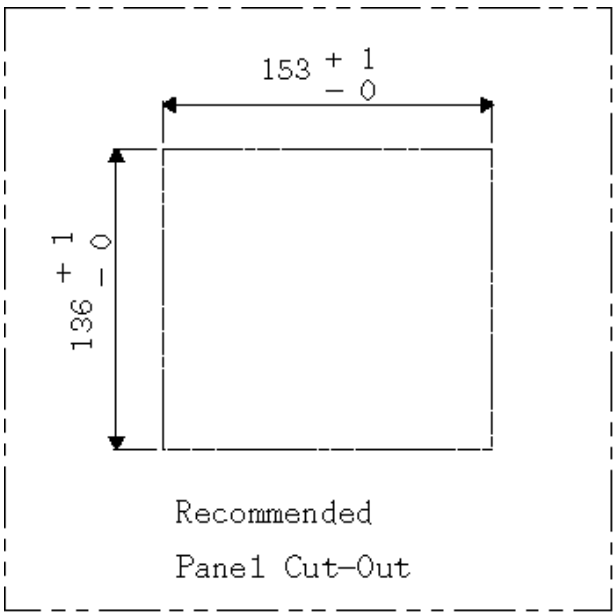
Front View



Rear View



Side View



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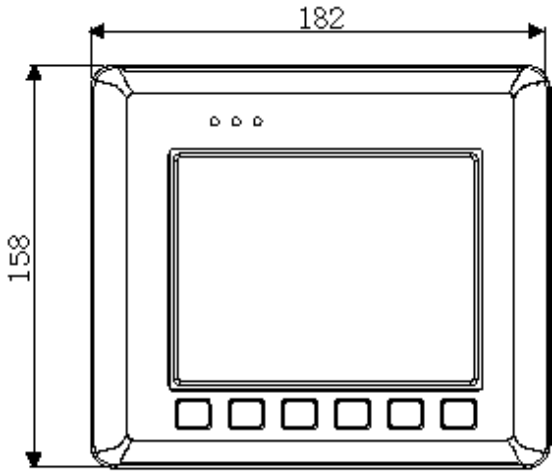
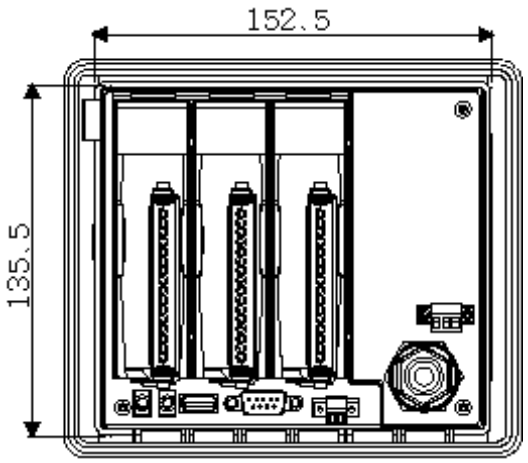
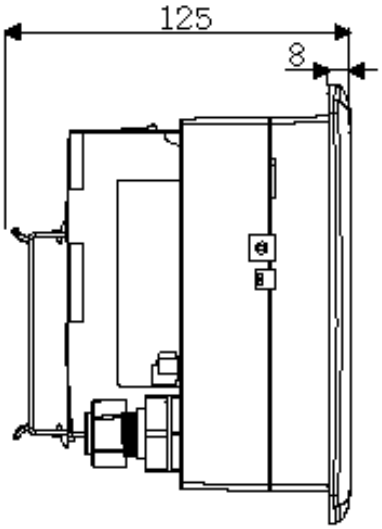
VP-25W1 Unit: mm



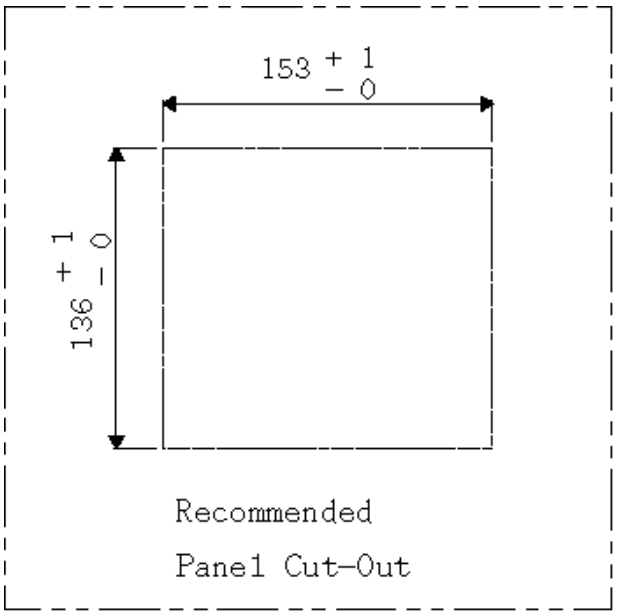
Front View



Rear View



Side View



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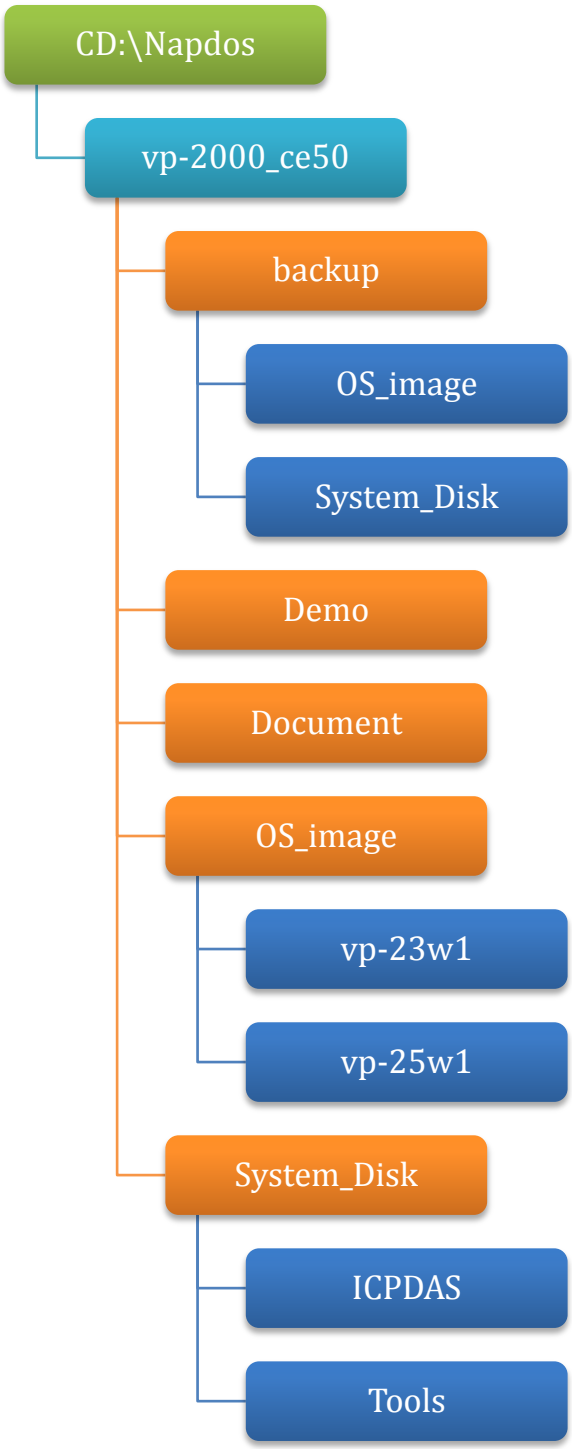
1.5. Companion CD

This package comes with a CD that includes the following software and documentation:



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2. INSTALLATION

This chapter provides basic information needed to set up the View PAC.

2.1. Before You Start

Before installing the hardware, you should have a basic understanding of hardware specification, such as the size of hard drive, the usable input-voltage range of the power supply, and the type of communication interfaces.

For complete hardware details, please refer to section “1.2. Specifications”.

You also need to know the expansion capacities in order to choose the best expansion device for achieving maximal efficiency.

For more information about expansion module that are compatible with the VIEW PAC, please refer to

http://www.icpdas.com/products/PAC/I-8000/8000_IO_modules.htm

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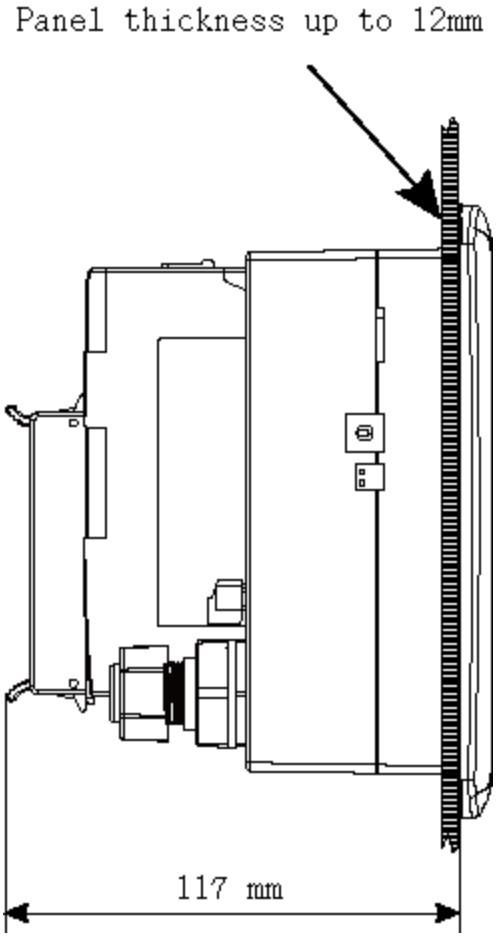
2.2. Mounting the hardware

The ViewPAC can be mounted on a panel of maximum thickness 12mm. Adequate access space can be available at the rear of the instrument panel for wiring and servicing purposes. The layout dimensions are shown below.

Take care not to cover ventilation holes in the top, bottom and sides of the instrument.



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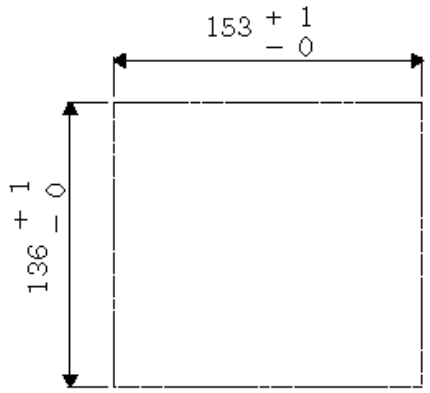
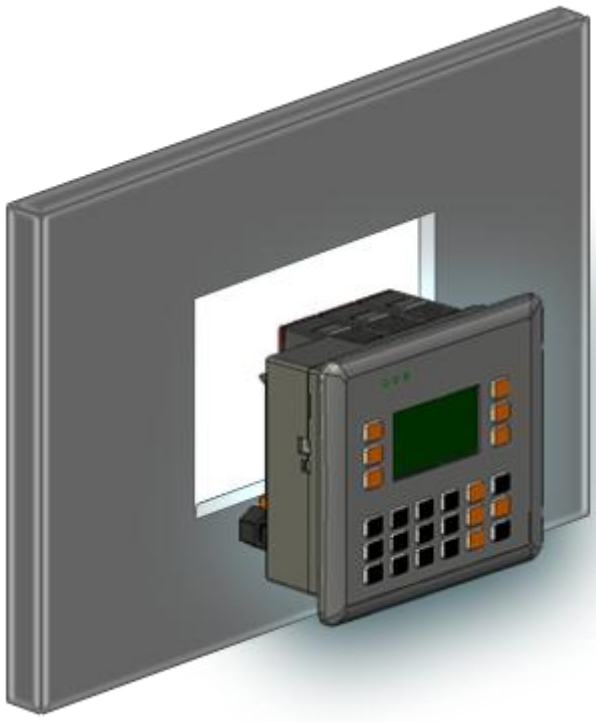
Follow the steps below to mount the ViewPAC

Step 1 **Prepare the panel cut-out to the size as below shown**



Recommended
Panel Cut-Out

Step 2 **Insert the View PAC through the panel cut-out**



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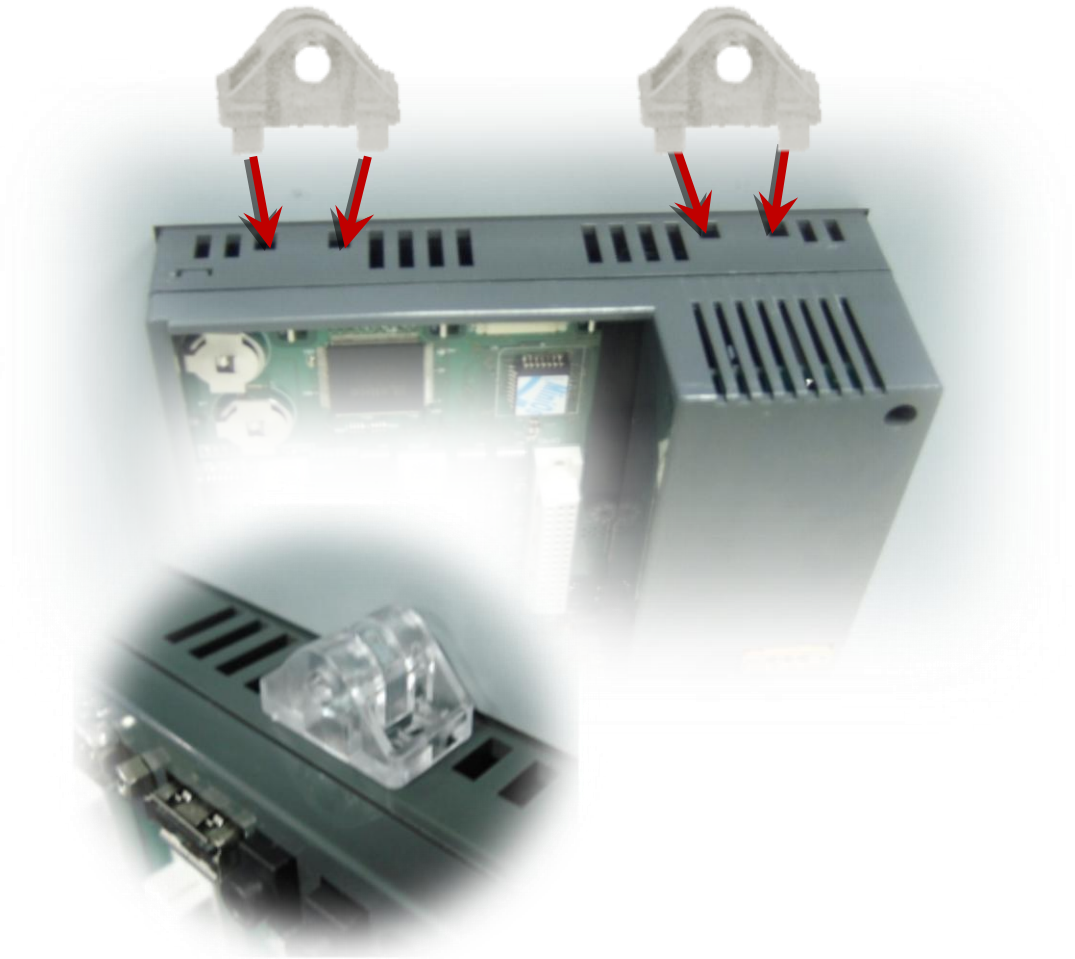
Step 3 **Install the panel mounting clips in the View PAC of the upper and lower panel surface**



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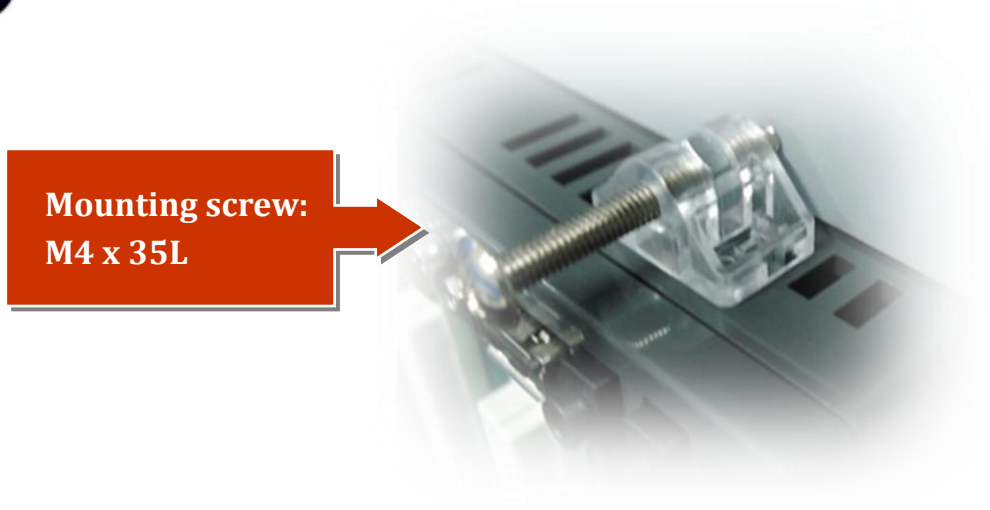
Step 4 Screw the panel mounting clips to the panel



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2.3. Powering up the View PAC

Step 1

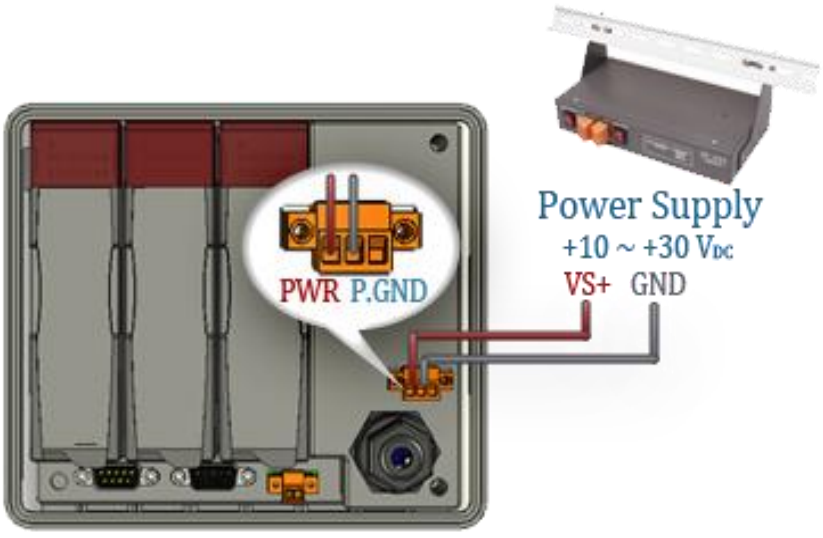
Prepare a power supply

The input range of the power supply is: +10 ~ +30 VDC

Step 2

Setting up the power supply

Connect the positive terminal (+) of the power supply to the terminal PWR and the negative terminal (-) of the power supply to the P.GND.



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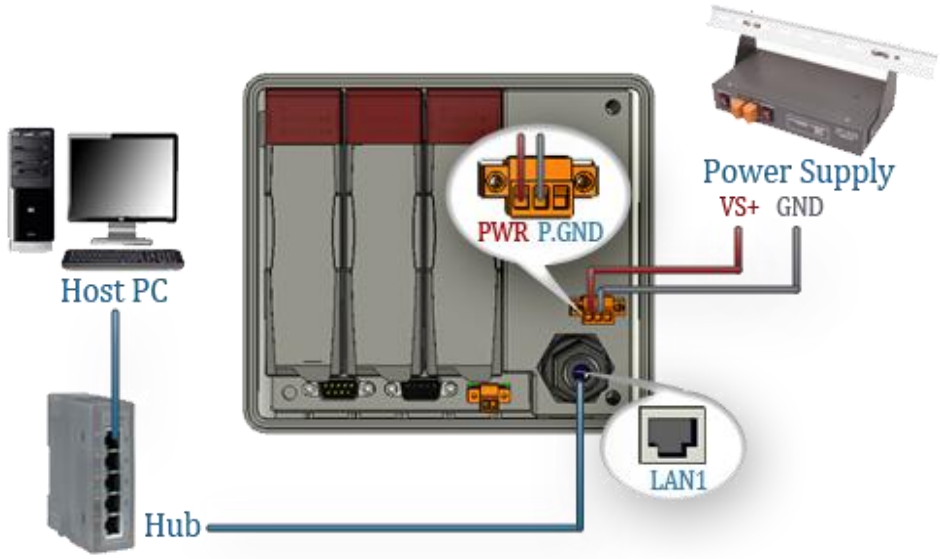
Connect power and hub

Connect the positive terminal (+) of the power supply to the terminal PWR and the negative terminal (-) of the power supply to the P.GND.



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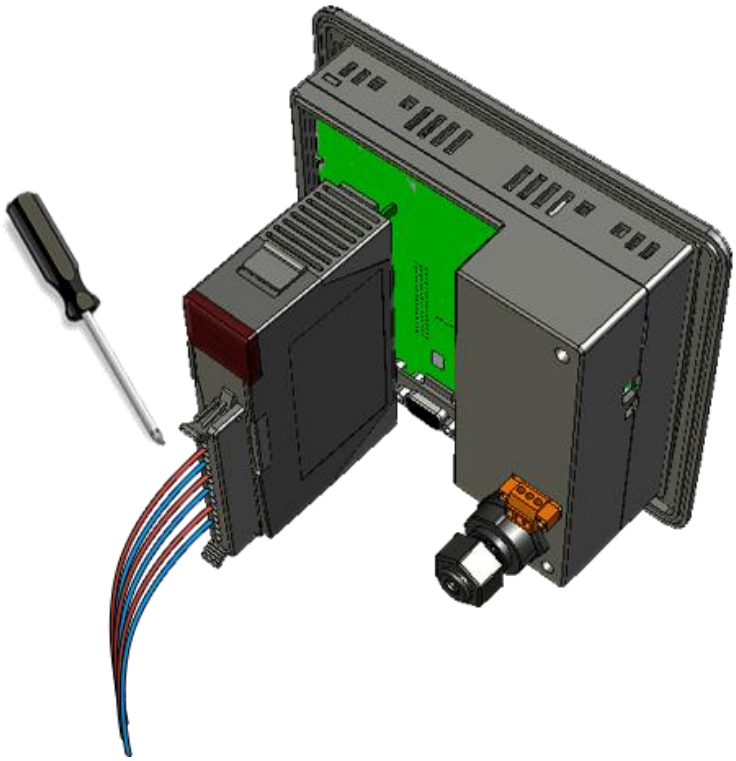
2.4. Inserting the I/O module

It is recommended that the power to the VIEW PAC is switched off when wring the I/O module which are plugging in the VIEW PAC slots.



For more information about expansion module that are compatible with the VIEW PAC, please refer to

http://www.icpdas.com/products/PAC/I-8000/8000_IO_modules.htm

By I-8K and I-87K series expansion modules, support is provided only in High Profile series.

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Read the relevant documentation

➢ The documentation for I-8K series modules is located at:

CD:\ Napdos\dcon\IO_Module\

http://ftp.icpdas.com/pub/cd/8000cd/napdos/dcon/io_module/8k_modules.htm

➢ The documentation for I-87K series modules is located at:

CD:\ Napdos\IO_Module\

http://ftp.icpdas.com/pub/cd/8000cd/napdos/dcon/io_module/87k_modules.htm

All documents include the I/O module specifications, pin assignments and wiring connections.

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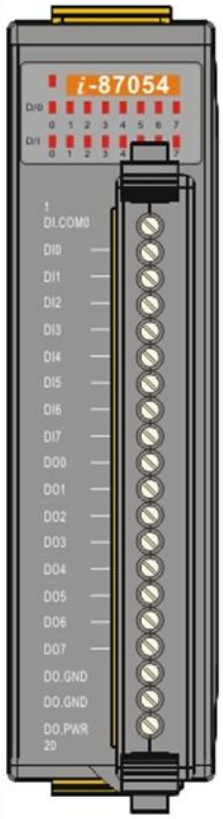
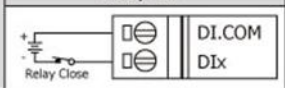
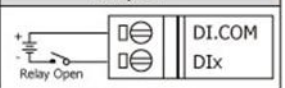
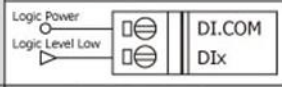
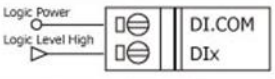
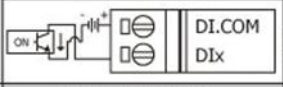
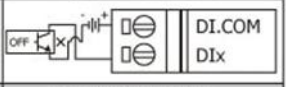
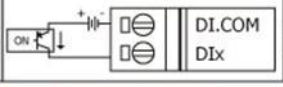
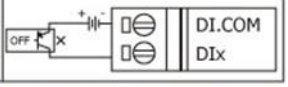
For example, Pin Assignments and Wiring connections for the I-87054W module are as follows:

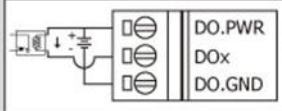
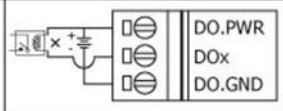
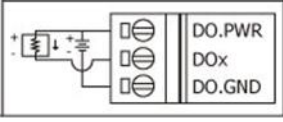
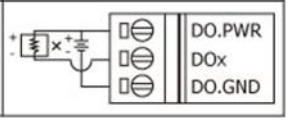
Pin Assignments



Terminal No.	Pin Assignment Name
01	DI.COM0
02	DI0
03	DI1
04	DI2
05	DI3
06	DI4
07	DI5
08	DI6
09	DI7
10	DO0
11	DO1
12	DO2
13	DO3
14	DO4
15	DO5
16	
17	
18	
19	
20	

Wire Connection

Input Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
Relay Contact	Relay ON 	Relay Off 
TTL/CMOS Logic	Voltage < 1V 	Voltage > 3.5V 
NPN Output	Open Collector On 	Open Collector Off 
PNP Output	Open Collector On 	Open Collector Off 

Output Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
Drive Relay	Relay ON 	Relay Off 
Resistance Load		

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2.5. Installing the IP-67 Waterproof connector

The ViewPAC provides an IP-67 waterproof connector which consists of the following components plugged in RJ-45 cable.

RJ45 Plug installed to waterproofing attachment.

Installed step:

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3. PRINCIPLE OF OPERATION

This chapter provides a general operating principle of the View PAC to help you to become more familiar with its use, and to ensure that it is correct type for your process.

3.1. Operation Mode Selection

There are five operation modes in ViewPAC that can be determined through a rotary switch. All the modes of operation will be explained later.

The table below lists the operation mode selection.

Rotary switch position	Modes of operation
0	Normal mode (Default)
1	Quick mode
2	OS update mode
3	Debug mode
4	(Reserved)
5	(Reserved)
6 ~ 9	(For user)

3.1.1. Normal mode (Default)

Normal mode is the default mode of operation and the one you will use most of the time. Use this mode for more tasks and configurations. Programs also are executed in this mode.

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3.1.2. Quick mode

Quick mode is a trouble shooting. The mode loads the minimum required device drivers and system services to boot the ViewPAC.

If you have malicious software or a program caused the ViewPAC cannot be boot or run the normal mode, you can boot in Quick mode to solve the problem.

In normal mode, if the new settings are not saved when you change and save the settings using the ViewPAC Utility, to solve this problem, perform the following steps:

Restart the ViewPAC in Quick mode

Turn the rotary switch to “1”, and then restart the ViewPAC.

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Step 2

Start the ViewPAC Utility to restore the default settings

Start the ViewPAC Utility, and then click the “Restore Default Settings” command and “Save” command from the “File” menu

Step 3

Restart the ViewPAC in normal mode

Turn the rotary switch to “0”, and then restart the ViewPAC.

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3.1.3. Debug mode

Debug mode is a special environment in which program debug functions can be used in addition to normal system functions.

Debug mode is unsupported.

3.1.4. OS Update mode

OS update mode is a way used to update OS. To update the ViewPAC OS image, please refer to “2.6. Updating the ViewPAC OS image”

3.1.5. User mode

Rotary switch position 6, 7, 8, 9 are reserved for user’s applications.

When ViewPAC is boot with one of these rotary switch positions, it is boot at normal mode. User’s application can check the rotary switch position to run at different mode.

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3.2. KeyPAD Entry

The View PAC has a QWERTY KeyPAD.

3 shift/Esc/Enter keys
Shift: The Shift key is a modifier key on a KeyPAD, used to enter capital letters and other alternate upper letters or characters.
Backspace: The Backspace is a keyboard key, used to move the cursor one position backwards, delete the preceding character, and shifts back the text after it by one position.
Enter:

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3.3. Monitor Calibration (for View PAC 25W1)

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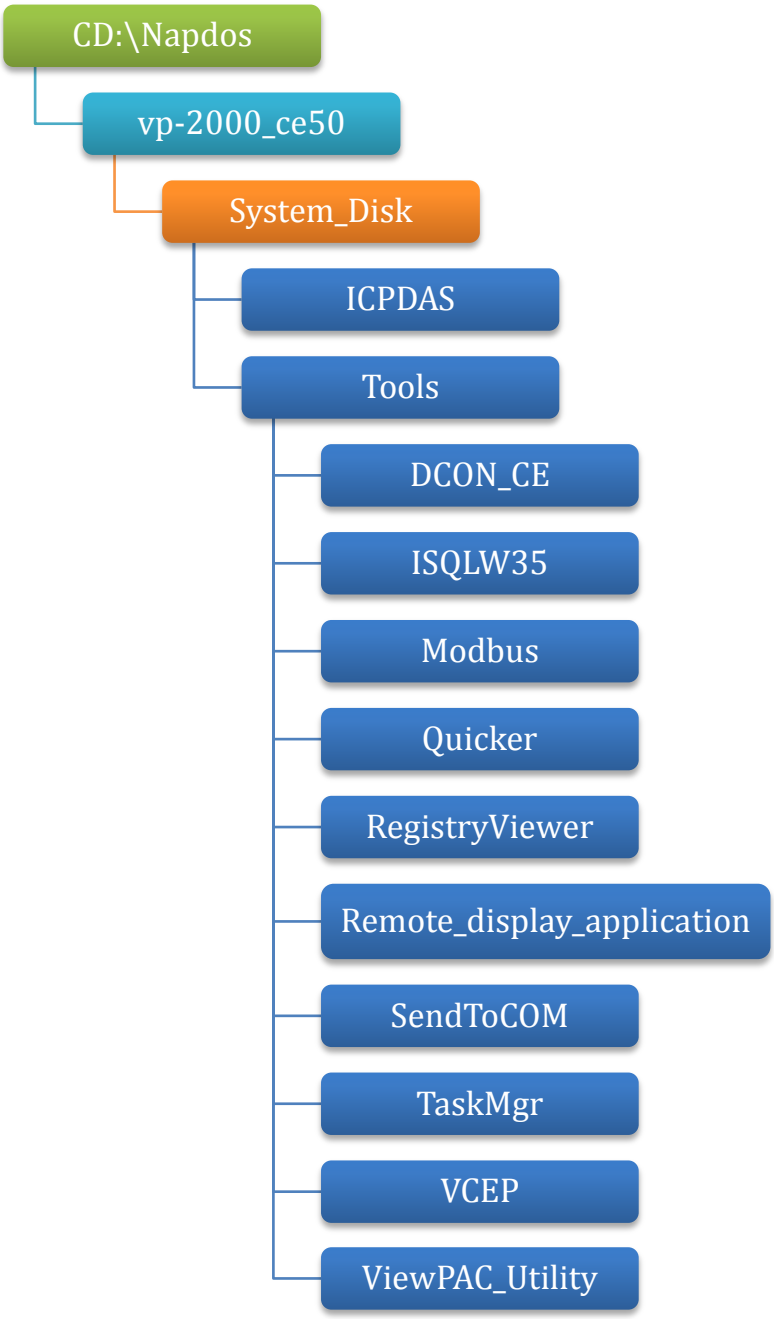
4. ViewPAC Tools

Following Tools has been installed on the ViewPAC.



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- DCON_CE

  With Host PC running the DCON Utility, on the ViewPAC, the DCON_CE program allows user to view and monitor the status of the DCON Utility.

- ISQLW35

  The ISQLW35 implements SQL server compact 3.5 Query Analyzer.

- Modbus

  The Modbus provides various applications of Modbus protocol for configuring the ViewPAC.

- Quicker

  Quicker is an integrated omnibus software package, it allows user to quickly establish a DCS control system.

  For more information about the Quicker, please refer to “3.2. Quicker”.

- RegistryViewer

  The Registry Viewer allows user to view the registry value of Windows CE Operating System.

- Remote display application

  The remote display application allows user to view the display remotely of the ViewPAC on a Host PC.

- SendToCOM

  The SendToCOM allows user to send/receive data to/from the expansion module via serial port.

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- TaskMgr

  The TaskMgr provides details about programs and processes running on the ViewPAC.

- VCEP

  The VCEP allows user to manage the ViewPAC remotely on a Host PC.

  For more information about the Quicker, please refer to “3.4. VCEP (Virtual CE Pro)”.

- ViewPAC Utility

  The ViewPAC Utility provides various useful functions such as configuring Ethernet settings, monitoring system settings and FTP services .etc for easy and quick management.

  For more information about the Quicker, please refer to “3.5. ViewPAC Utility”.

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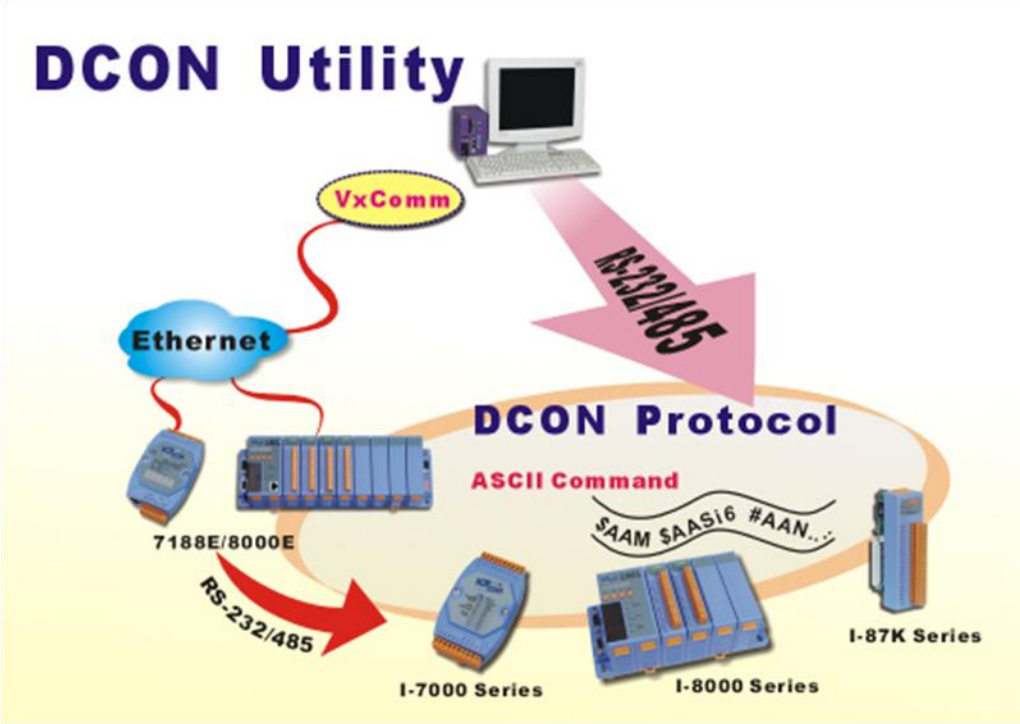
4.1. DCON Utility (for PC side)



The DCON Utility is a toolkits that help user search the network, easily to configure the I/O modules and test the I/O status via the serial port (RS-232/485) or Ethernet port (using virtual com port). It support not only the DCON Protocol I/O modules but also the M Series I/O Modules (Modbus RTU M-7K,M-87K and will support Modbus ASCII M-87K) now.

For more detailed information on DCON Utility application, please refer to
http://www.icpdas.com/products/dcon/introduction.htm

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4.2. Quicker

What is Quicker? Quicker is an integrated omnibus software package which combines OPC, Modbus TCP, Modbus RTU services, and Scan kernel together.

The particular design, “Rule Script”, lets user can quickly establish a DCS control system with logic control, multi-communication services.

For UI design, Quicker uses an explorer-style user interface to display a hierarchical tree of modules and groups with their associated tags. A group can be defined as a subdirectory containing one or more tags. A module may have many subgroups of tags. All tags belong to their module when they are scanned to perform I/O.. (The “OPC” stands for “OLE for Process Control” and the “DA” stands for “Data Access”.)

For software use, Quicker creates a set-up procedure requiring at most three steps for different kinds of users. This kind of procedure simplifies the designing process for the programmer, and ensures the stability and efficiency of control system. Quicker can not only automatically map the physical I/O to a specific Modbus address, but also allows users to define their own variables into it. Therefore users can develop their own application program with eVC++, VB.NET, and VC#.NET programming language via the Modbus RTU and Modbus TCP protocol to share their specific data with Modbus client. Moreover, users can operate the Quicker and NAPOPC in coordination to create a fantastic solution integrating SCADA software with on-line data.

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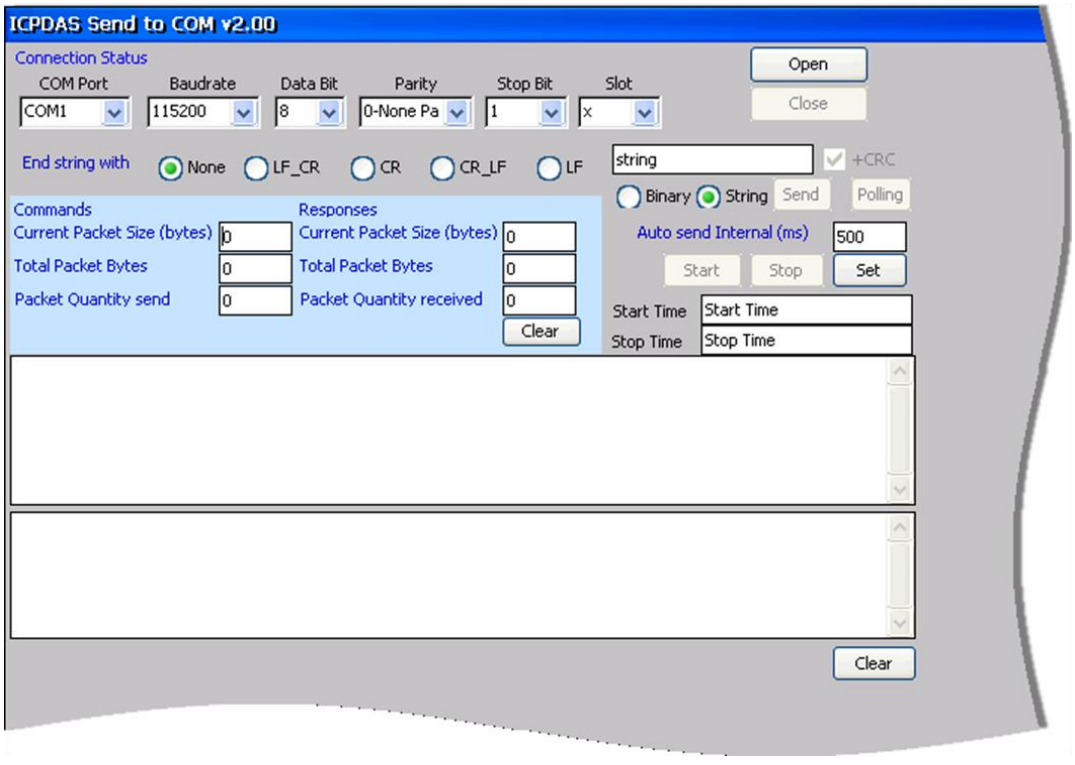
4.3. SendToCOM

The sendToCOM uses the serial port to communicate with expansion module. To use the sendToCOM, you can send data to expansion module through the serial port, and receive data from other device through the serial port.

For more information about these commands for communicating with expansion module, please refer to:

CD:\Napdos\io_module\87k_high_profile_modules.htm



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4.4. VCEP (Virtual CE Pro)

ICPDAS VCEP is designed for managing your ViewPAC anywhere. No matter where you are, ICPDAS VCEP provides a convenient environment on the Desktop PC and allows you control your View PAC remotely.

ICPDAS VCEP is composed of two main components:

The “Server” which runs on View PAC.

The “Client" which runs on a Desktop PC.

Once a connection is established between the client and server (initiated by the client), the client will periodically send requests for screen updates and send mouse/key click information to the server to simulate. Each video frame is inter-compressed against the previous frame and then intra-compressed with a modified LZW scheme to minimize the amount of data transmitted from server to client.

For more detailed information on VCEP application, please refer to

http://www.icpdas.com/products/PAC/wincon-8000/wincon_VirtualCE.htm

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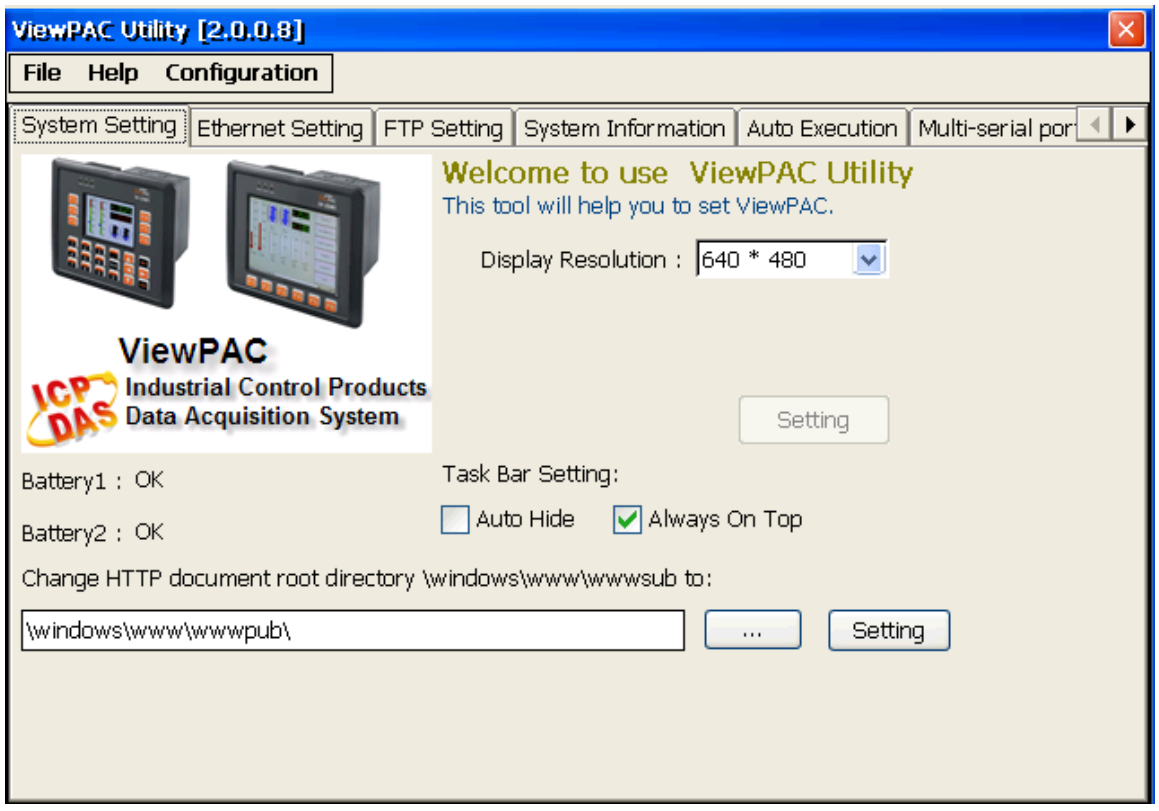
4.5. ViewPAC Utility

The ViewPAC Utility is a tool which is designed to quickly control and management the ViewPAC.

For more detailed information on ViewPAC Utility applications, please refer to "2.4. ViewPAC Utility for configuring the ViewPAC"



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5. TOOLS AND TASKS

This chapter explains how to locate and change the value of parameters using View PAC Tools.

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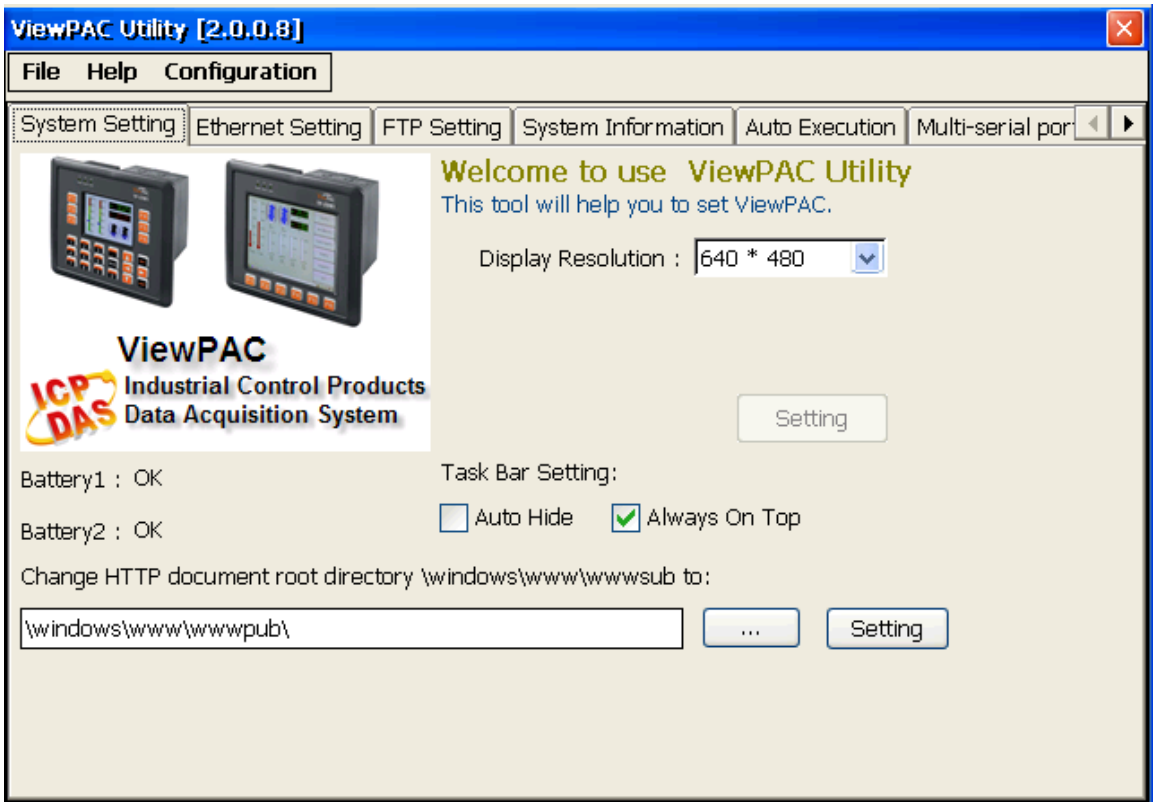
5.1. ViewPAC Utility for Configuring View PAC

The ViewPAC Utility is a tool which is designed to quickly control and management the ViewPAC controller.

Starting the ViewPAC Utility to configure the ViewPAC

To start the ViewPAC Utility, you can double-click the ViewPAC Utility shortcut on the desktop. The ViewPAC Utility window contains two basic components: menu bar and property tabs.

The View PAC Utility displays



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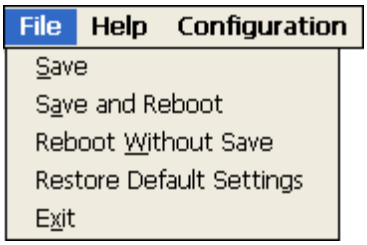
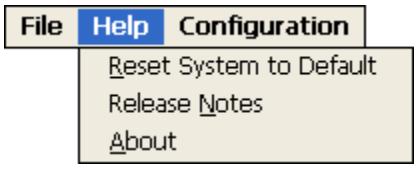
5.1.1. ViewPAC Utility Menu Bar

The ViewPAC Utility includes the following function menu, all function menu will be explained later.

➢ File Menu



➢ Help Menu



➢ Configuration Menu

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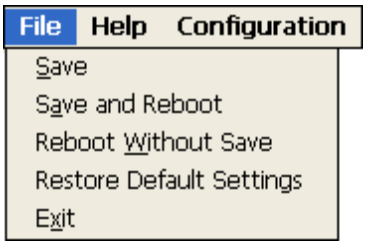
5.1.1.1. File Menu



The menu commands	Use to
Save	Saves the settings into Flash. The new settings don't take effect until the ViewPAC restart.
Save and Reboot	Saves the settings into Flash and restart the ViewPAC. The new settings will take effect after the ViewPAC restart.
Reboot Without Save	Restarts the ViewPAC without save the settings into Flash.
Restore Default Settings	Restarts the settings of ViewPAC to its factory default values. The settings include configuration setting, network setting, auto execution, etc.
Exit	Exits the ViewPAC Utility.

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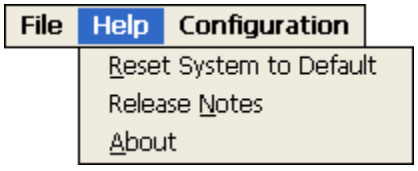
5.1.1.2. Help Menu



The menu commands	Use to
Reset System to Default	Resets the system interrupt status to default. The operation used in the situation when the interrupt crash. You can select this operation to reset the interrupt status without rebooting the device.
Release Notes	Checks out what's new and the know issues.
About	Displays a dialog box with information about ViewPAC Utility, including the current version and copyright information.

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5.1.1.3. Configuration Menu

The menu commands	Use to
Import Registry Key	Backs up a sub-key of registry by using a registration entry (.reg) file. How to use: Step 1: Select the “Import Registry Key”, then the “Open” dialog box will appear Step 2: On the “Open” dialog box, select a specific .reg file to import Warning: 1. The .reg file which should be saved by “Export Registry Key”. 2. It will not save automatically after import a .reg file.
Export Registry Key	Makes a back up of a registry sub-key How to use: Step 1: Select the “Export Registry Key”, then the “Export Registry” box will appear Step 2: Select a specific root key Step 3: Input a specific path of sub-key Step 4: Push the “OK” button, then the “Save As” dialog box will appear prompting you to select a

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The menu commands	Use to
	location where you want to save this exported file Warning: The export operation will export all the sub-keys of the specific key which you input.
Store All Registry Setting	Stores all registry setting to flash from .das file which is saved by “Dump All Registry Setting”. How to use: Step 1: Select the “Store All Registry Setting” , then the “Open” dialog box will appear Step 2: On the “Open” dialog box, select a specific .das file to store Warning: 1. The .das file which should be saved by “Dump All Registry Setting”. 2. It will save automatically after store .das file.
Dump All Registry Settings	Dump all registries setting to .das file. How to use: Select the “Dump All Registry Setting”, then the “Save As” dialog box will appear prompting you to select a location where you want to save this exported file.

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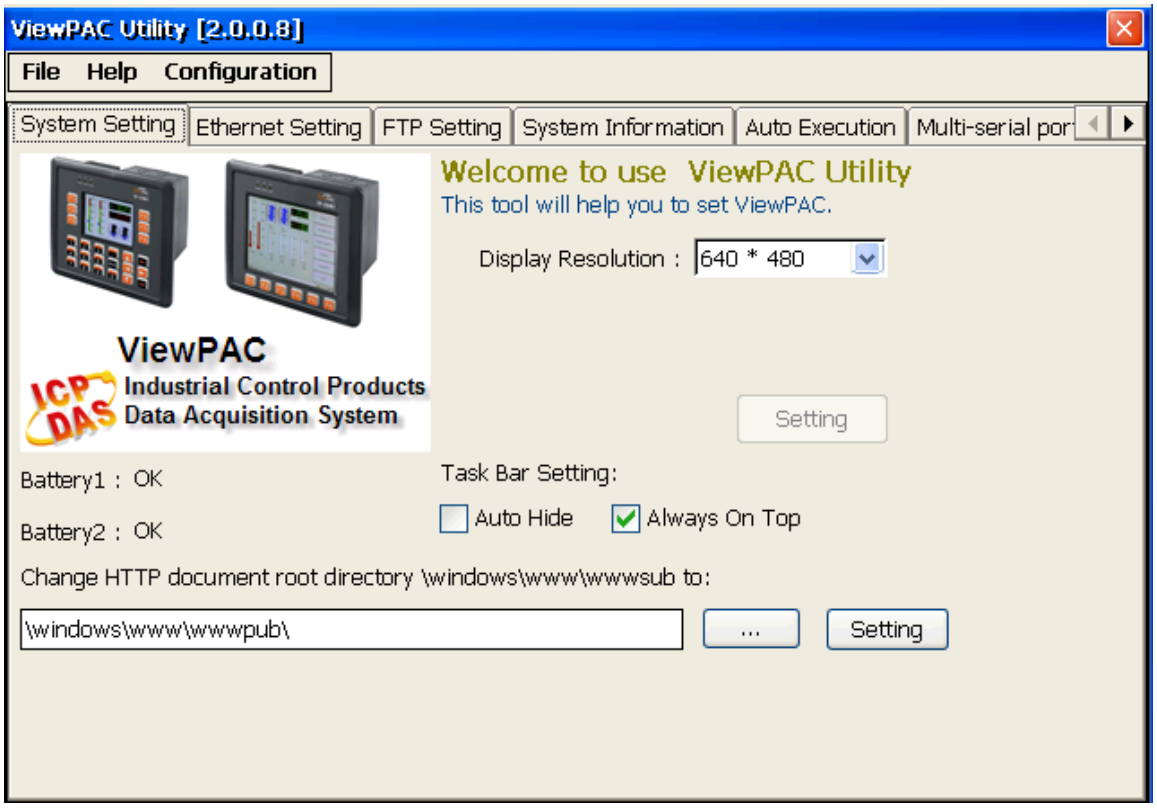
5.1.2. ViewPAC Utility Property Tabs

The ViewPAC Utility includes the following property tabs, all property tabs will be explained later.



- **System Setting**
- **Ethernet Setting**
- **FTP Setting**
- **System Information**
- **Auto Execution**
- **Multi-serial port wizard**
- **System Memory Setting**
- **Backplane Compatibility**

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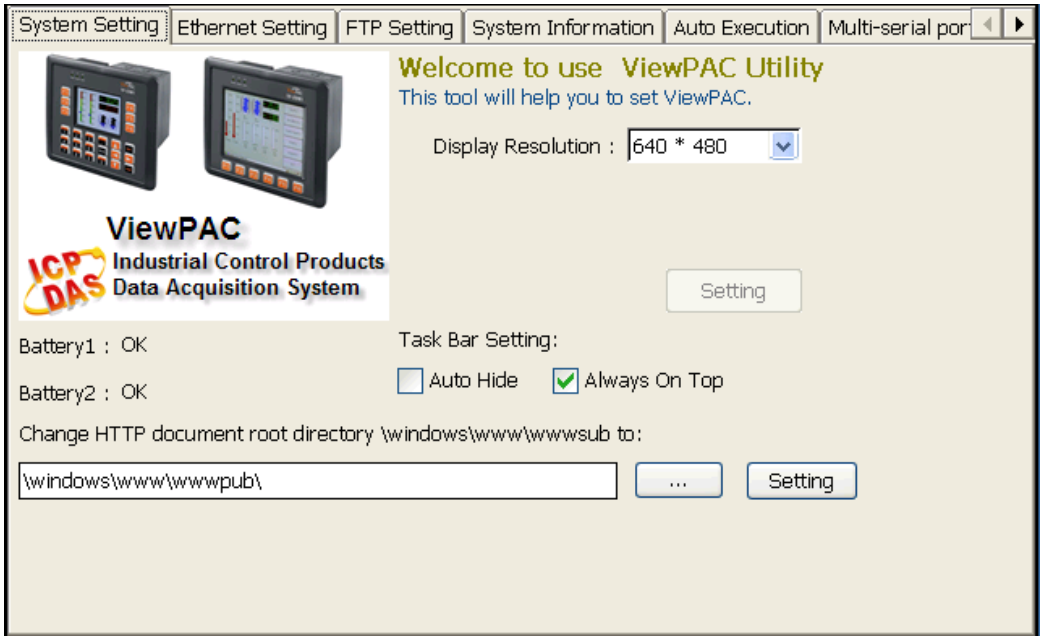
5.1.2.1. System Setting tab

The System tab provides functions to configure the task bar HTTP directory path.



The tab use to	How to use
Adjust the size of the desktop	Select a display resolution from the Resolution list.
Lock or Auto-Hide the taskbar	Auto-Hide: Select the Auto Hide check box Lock: Select the Always On Top check box.
Check the status of the battery	See the Battery1 and Battery2 field that displays the battery status.
Change the HTTP directory path	Enter a new path in the Change HTTP document root directory \windows\www\wwwsub to filed, and then press the Setting button.

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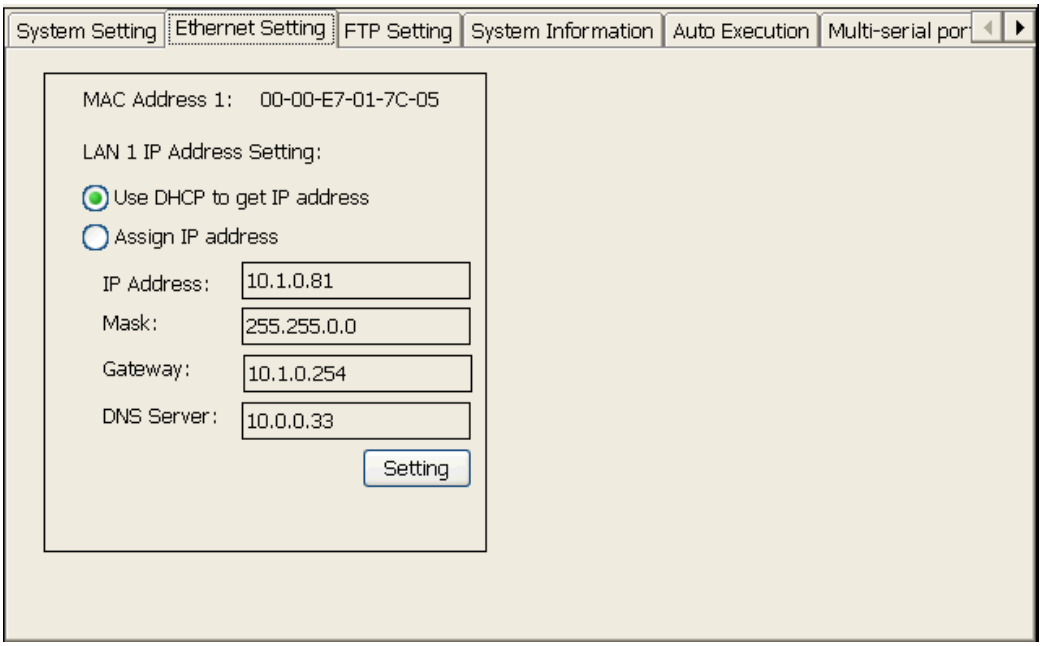
5.1.2.2. Ethernet Setting tab

The Ethernet Setting tab provides functions to configure either DHCP (Roaming) or manually configured (Static) network settings and to monitor the MAC address. Generally, DHCP is the default settings, but if you don't have a DHCP server, you must configure the network settings by using manual configuration.



The tab use to	How to use
Configure the network settings	Obtaining an IP address automatically from DHCP: Select the Use DHCP to get IP address option. Manually assign an IP address: Select the Assign IP address option.
Monitor the MAC address	See the MAC Address 1 and MAC Address 2 fields that displays the physical address of LAN1 and LAN2.

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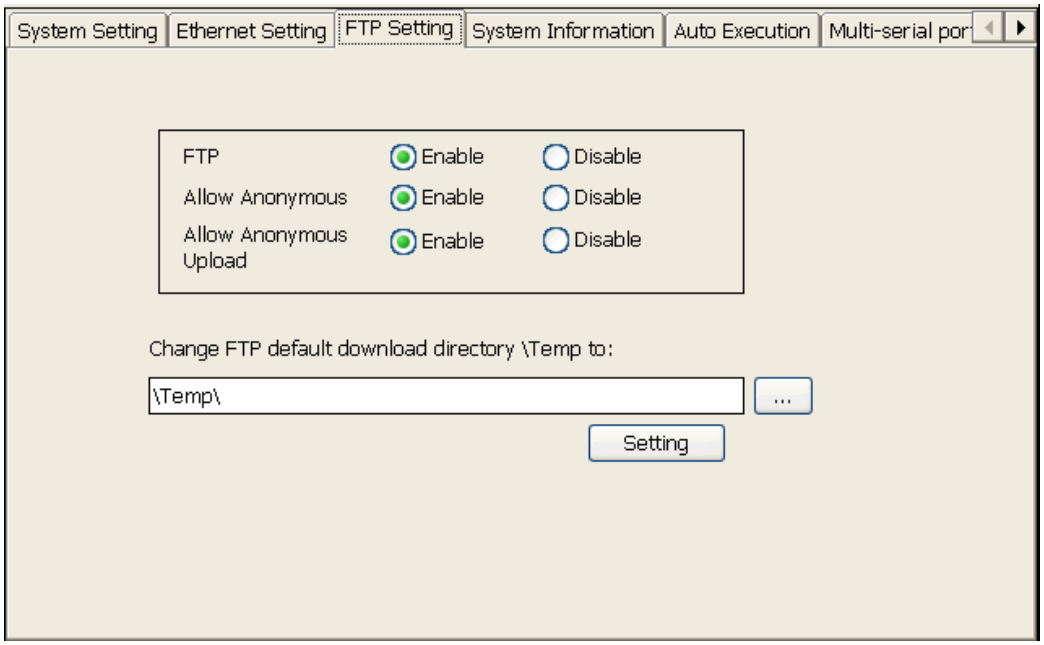
5.1.2.3. FTP Setting tab

The FTP Setting tab provides functions to enable/disable the FTP access, enable/disable anonymous FTP access, and configure the FTP directory path.



The tab use to	How to use
Enable or disable the FTP access	Enable: Select the Enable check box in the FTP field. Disable: Select the Disable check box in the FTP field.
Enable or disable anonymous FTP access	Enable: Select the Enable check box in the Allow Anonymous field. Disable: Select the Disable check box in the Allow Anonymous field.
Enable or disable anonymous FTP upload	Enable: Select the Enable check box in the Allow Anonymous Upload field. Disable:

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The tab use to	How to use
	Select the Disable check box in the Allow Anonymous Uploadc field.
Change the FTP directory path	Enter a new path in the Change FTP default download directory \temp to filed, and then press the Setting button.

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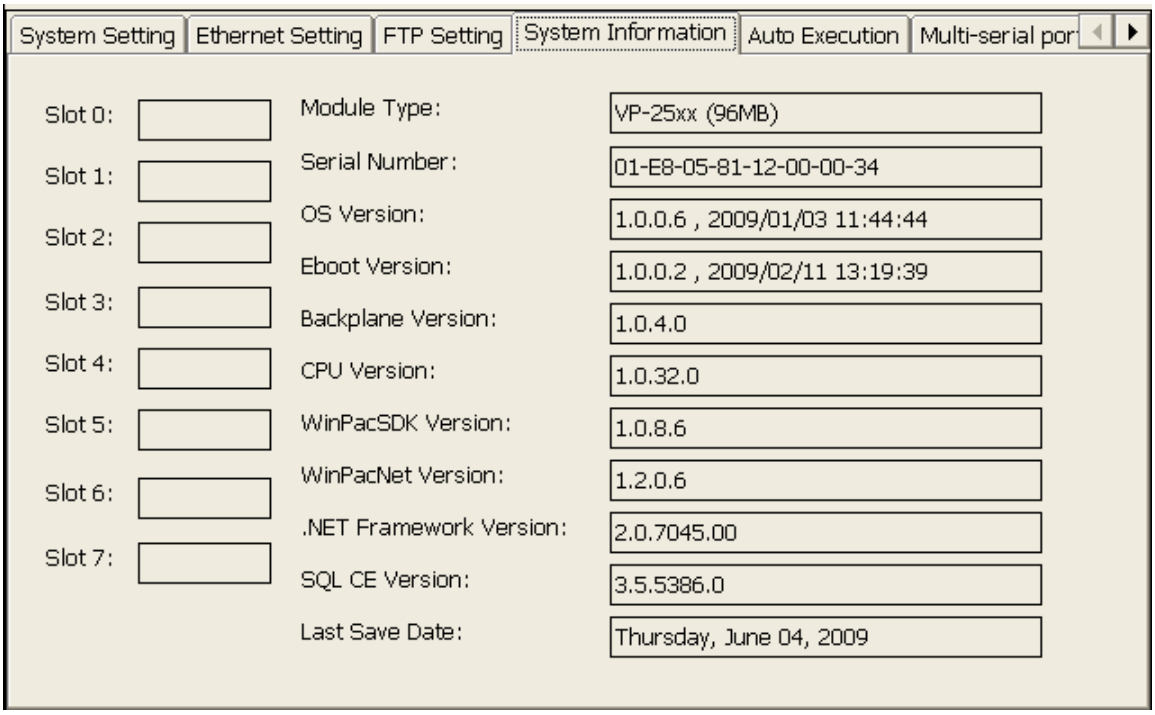
5.1.2.4. System Information tab

The System Information tab provides functions to monitor necessary system information of the ViewPAC-8000. The system information is most important note of version control for upgrading system.



The tab use to	How to use
Monitor the local I/O slots	See the **Slot 0** ~ **Slot 2** field that displays the module names plugged in ViewPAC.
Monitor the module type	See the **Module Type** field that displays the module name of the ViewPAC.
Monitor the serial number	See the **Serial Number** field that displays the 64-bit hardware serial number of the ViewPAC.
Monitor the OS version	See the **OS Version** field that displays the OS version of the ViewPAC.
Monitor the Eboot	See the **Eboot Version** field that displays the

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The tab use to	How to use
version	Eboot version of the ViewPAC.
Monitor the Backplane version	See the **Backplane Version** field that displays the backplane version of the ViewPAC.
Monitor the CPU version	See the **CPU Version** field that displays the CPU version of the ViewPAC.
Monitor the WinPASDK_DLL version	See the **ViewPACSDK Version** field that displays the ViewPACSDK_DLL version of the ViewPAC.
Monitor the ViewPACNet_DLL version	See the **ViewPACNet Version** field that displays the ViewPACNet_DLL version of the ViewPAC.
Monitor the .net framework version	See the **.NET Framework Version** field that displays the .net framework version of the ViewPAC.
Monitor the SQL CE version	See the **SQL CE Version** field that displays the SQL CE version of the ViewPAC.
Monitor the last save date	See the **Last Save Date** field that displays the last saving time of the ViewPAC Utility

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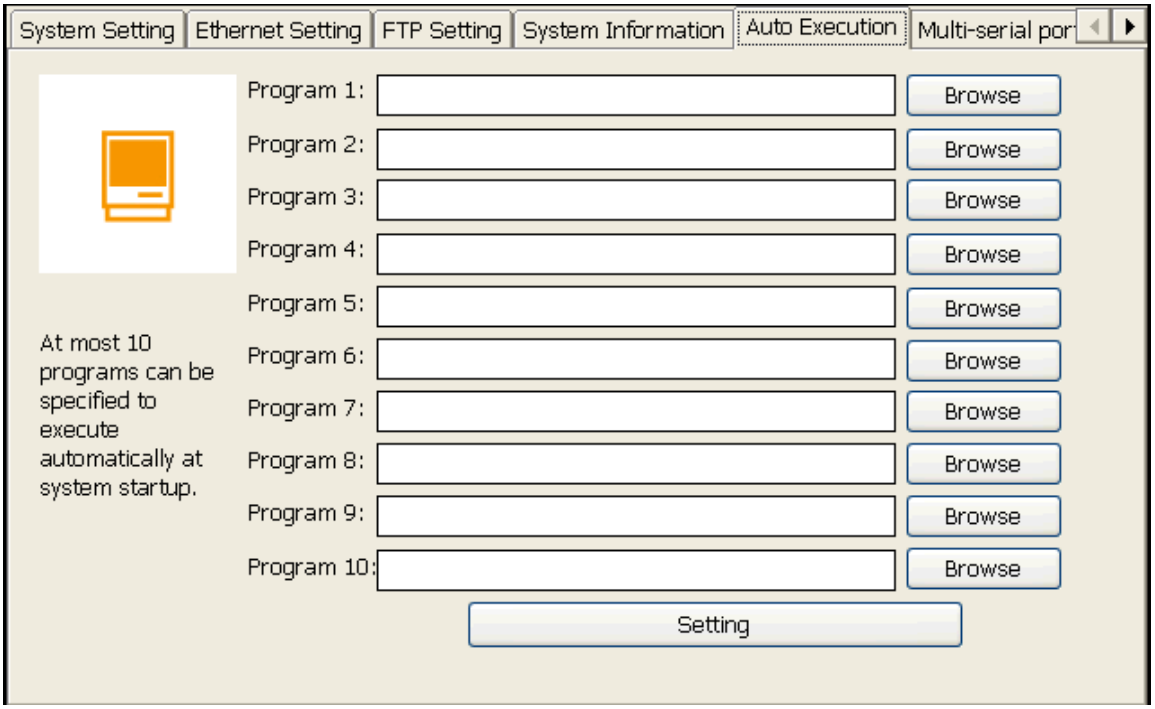
5.1.2.5. Auto Execution tab

The Auto Execute tab provides functions to configure programs running at ViewPAC-8000 startup, it allows users to configure ten execute files at most.

The allowed file types are .exe and .bat, and they are executed in order of program 1, program 2, etc.



The tab use to	How to use
Configure programs running at startup	Press the **Browse** button to select the execute file which you want, and then press the **Setting** button.

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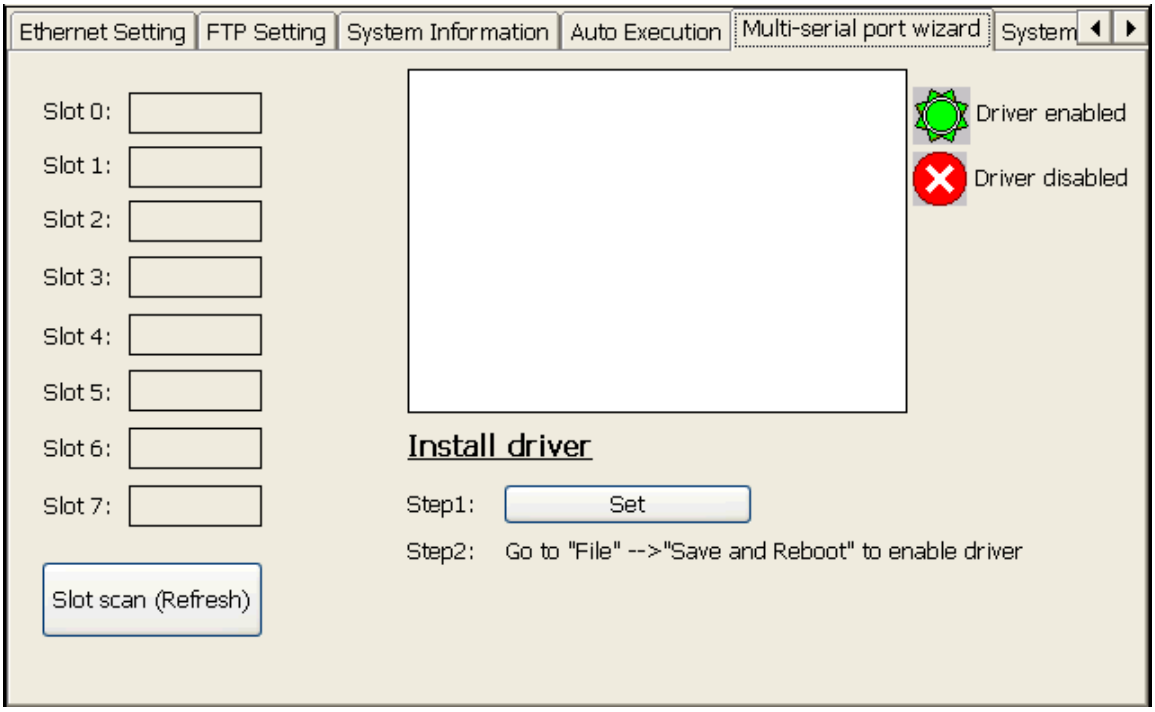
5.1.2.6. Multi-serial port wizard tab

The Multi-serial port provides functions for installation of the RS-232/RS-422/RS-485 communication module driver.

For more information about expansion RS-232/RS-422/RS-485 communication module that are compatible with the ViewPAC, please refer to

http://www.icpdas.com/products/Remote_IO/i-8ke/selection_rs232_i8k.htm



The tab use to	How to use
Install the communication modules driver	Press the **Set** button, and then Select **Save and Reboot** from **File** menu to enable driver
Monitor the availability of communication modules	Press the **Slot scan (Refresh)** button, and then see the **Slot 0** ~ **Slot 2** fields that displays the availability of communication module name.

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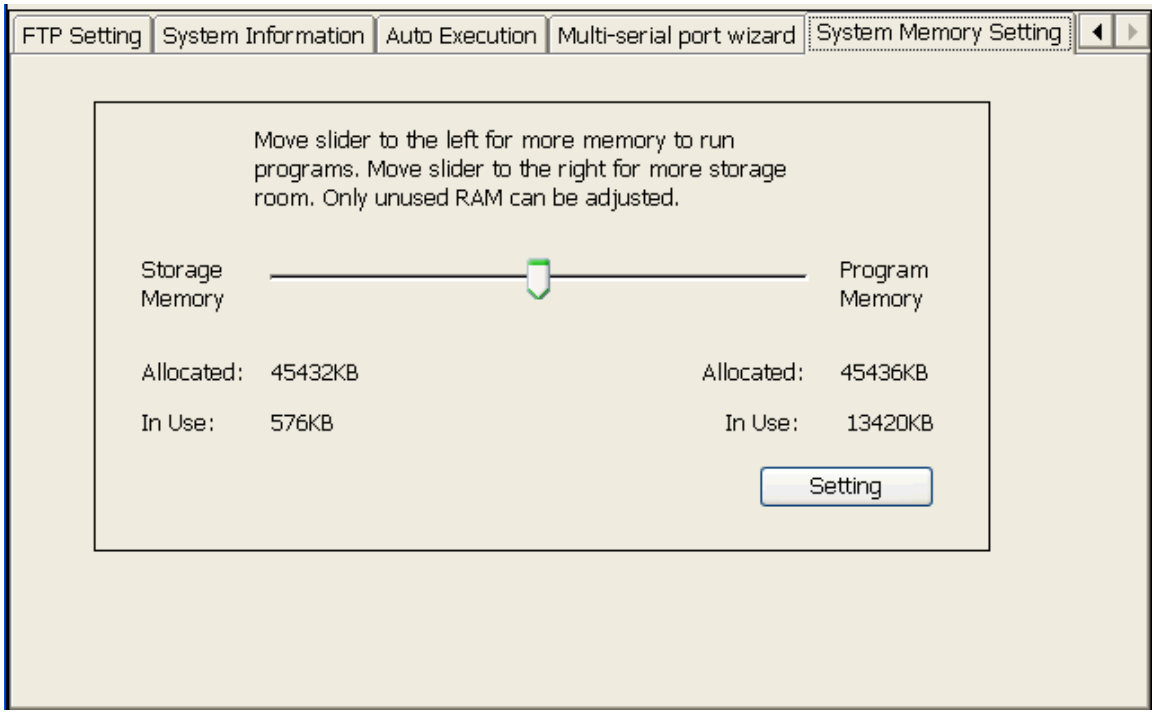
5.1.2.7. System Memory Setting tab

The SRAM Setting tab provides functions to adjust and monitor the unused RAM.


FTP Setting
System Information
Auto Execution
Multi-serial port wizard
System Memory Setting
Move slider to the left for more memory to run programs. Move slider to the right for more storage room. Only unused RAM can be adjusted.
Storage Memory
Program Memory
Allocated: 45432KB
In Use: 576KB
Allocated: 45436KB
In Use: 13420KB
Setting

The tab use to	How to use
Adjust display	Move the **slider left** to release more memory running programs or move the **slider right** to release more storage room, and then press the **Setting** button

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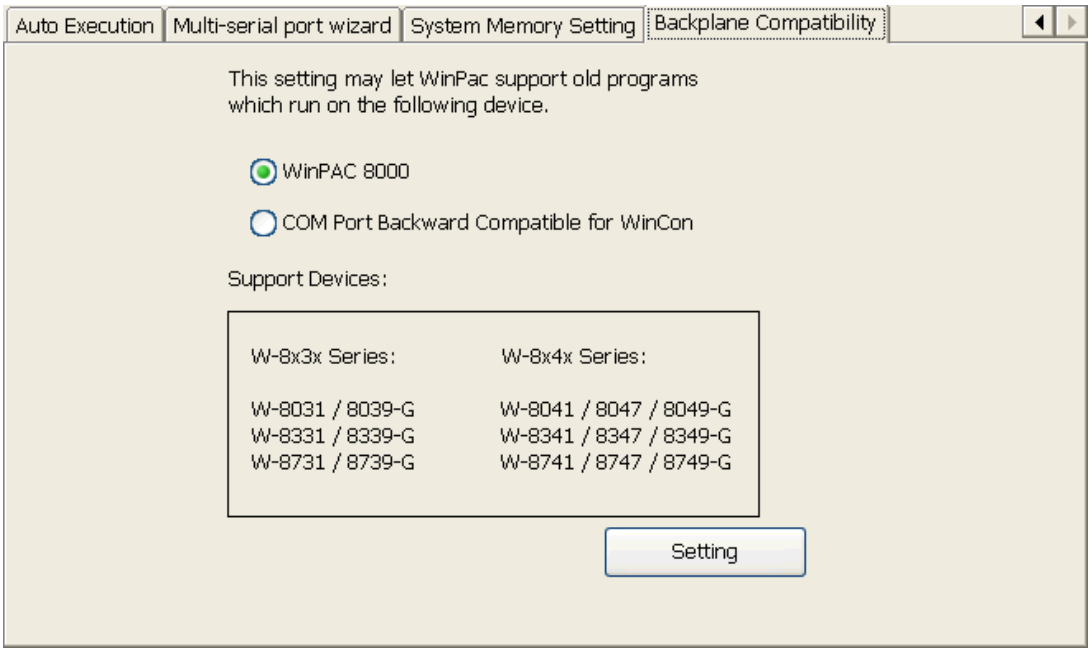
5.1.2.8. Backplane Compatibility tab

The Backward Compatible provides functions to keep old programs running on ViewPAC-8000 without any modification.



The tab use to	How to use
Configure programs running at WinCon	Select **COM Port Backward Compatible for WinCon**, and then press **Setting** button.

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6. YOUR FIRST PROGRAM ON VIEWPAC

Before writing your first program, ensure that you have the necessary development tools and the corresponding ViewPAC SDKs are installed on your system.

6.1. Setting up the development tools

The following tools are available for application developers targeting Windows CE-based ViewPAC. One of the following tools must be installed on the Host PC.

- Microsoft eMbedded Visual C++
- Visual Basic.net
- Visual C#

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6.2. Installing ViewPAC SDKs

The ViewPAC SDKs are necessary for application developers targeting Windows CE-based ViewPAC. The corresponding ViewPAC SDKs must be installed on the host PC.

This SDK installation puts the header files, libraries and simple utility into the following public places so they are easily changed by update the ViewPAC SDK.

Header files:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include

Libraries:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib

6.3. View PAC API

After installing the ViewPAC SDK, a number of functions can be installed on the host PC. This installation puts the header files, libraries and simple utility into the following public places so they are easily changed by update the ViewPAC SDK.

Header files:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include

Libraries:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib

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6.3.1. Overview of ViewPAC SDK

The ViewPAC SDK is a set of tools that help you develop software that interacts with View PAC technology.

The ViewPAC SDK consists the following API function:

WinPAC Standard API

ViewPAC API

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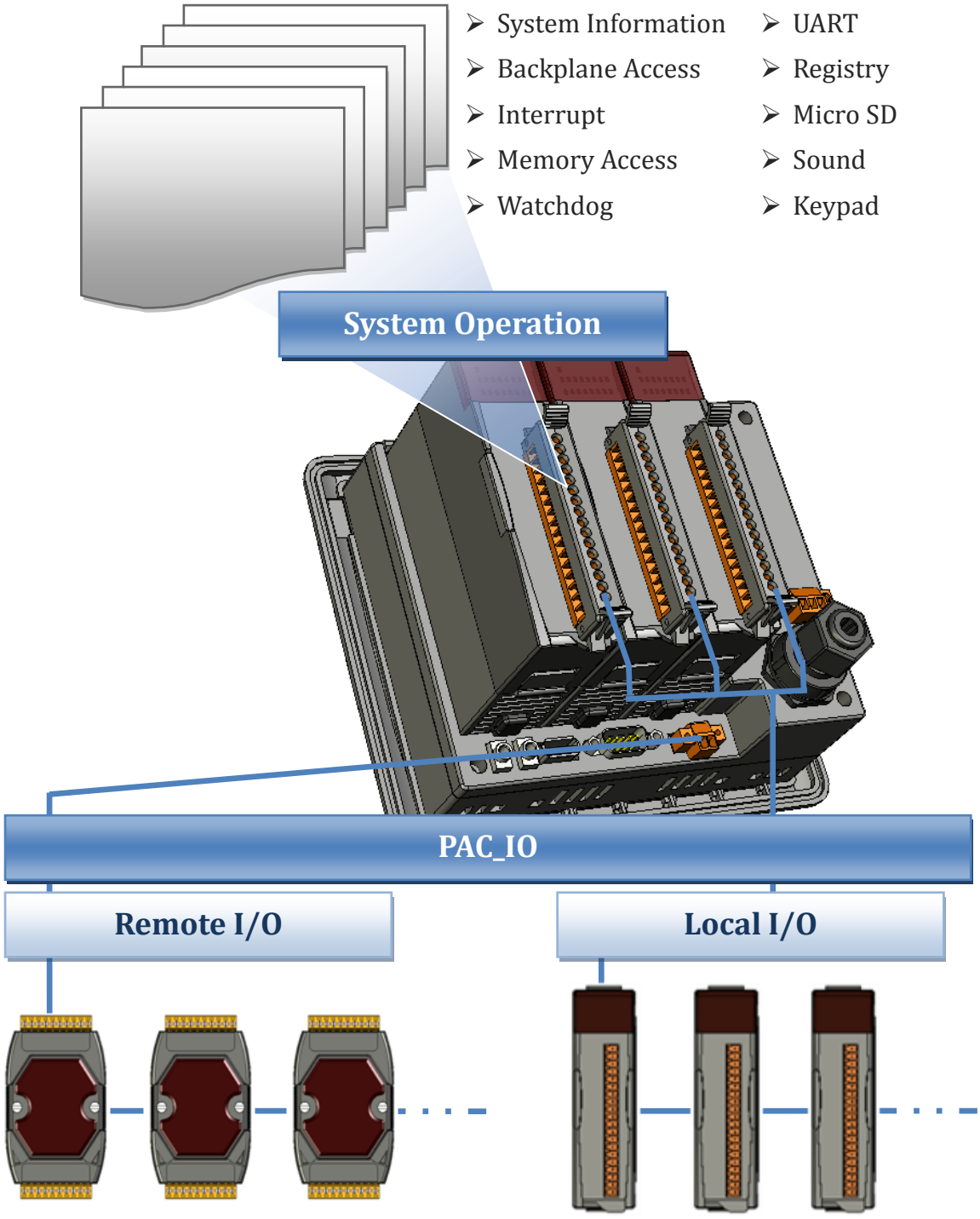
The ViewPAC SDK enables applications to exploit the power of ViewPAC. The ViewPAC SDK consists of the following API and functional categories:



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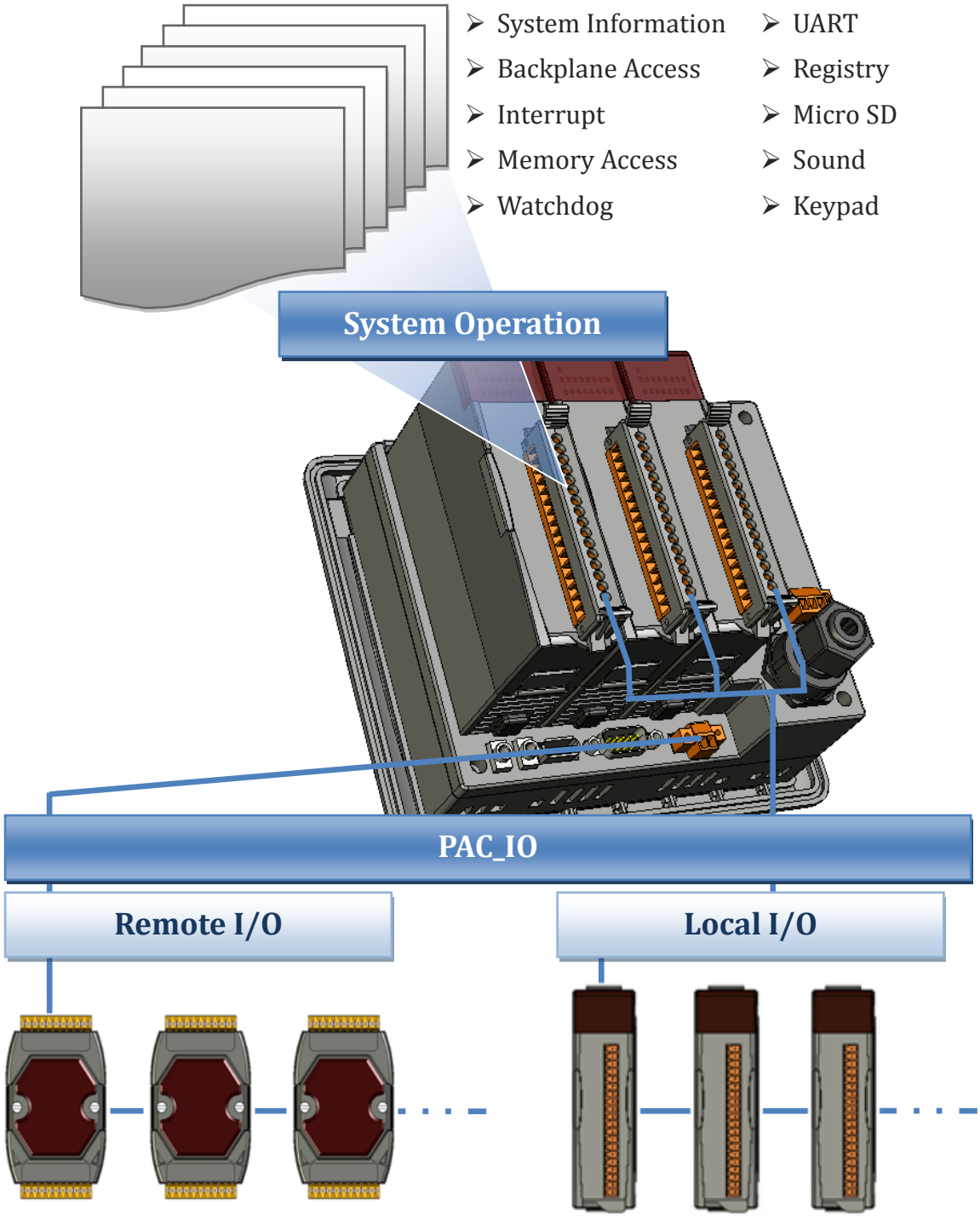
The ViewPAC SDK enables applications to exploit the power of ViewPAC. The ViewPAC SDK consists of the following API and functional categories:



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- System Information Functions

  Provides reference information for the system status.

- Backplane Access API

  Provides reference information for the backplane access APIs, including Hot Plug and backplane information.

- Interrupt API

  Provides reference information for the Interrupt APIs.

- Memory Access API

  Provides reference information for the memory R/W APIs, including EEPROM and SRAM.

- Watchdog Functions

  Provides reference information for the watchdog APIs, including hardware watchdog and OS watchdog.

- Uart API

  Provides reference information for the Uart APIs.

- Registry API

  Provides reference information for the registry.

- MicroSD Management API

  Provides reference information for the MicroSD Manager.

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- PAC_IO API

  Provides reference information for IO APIs, including local and remote.

  In additions, no matter 8K or 87K modules use the same API.

- Error Handling API

  Provides reference information for error handling.

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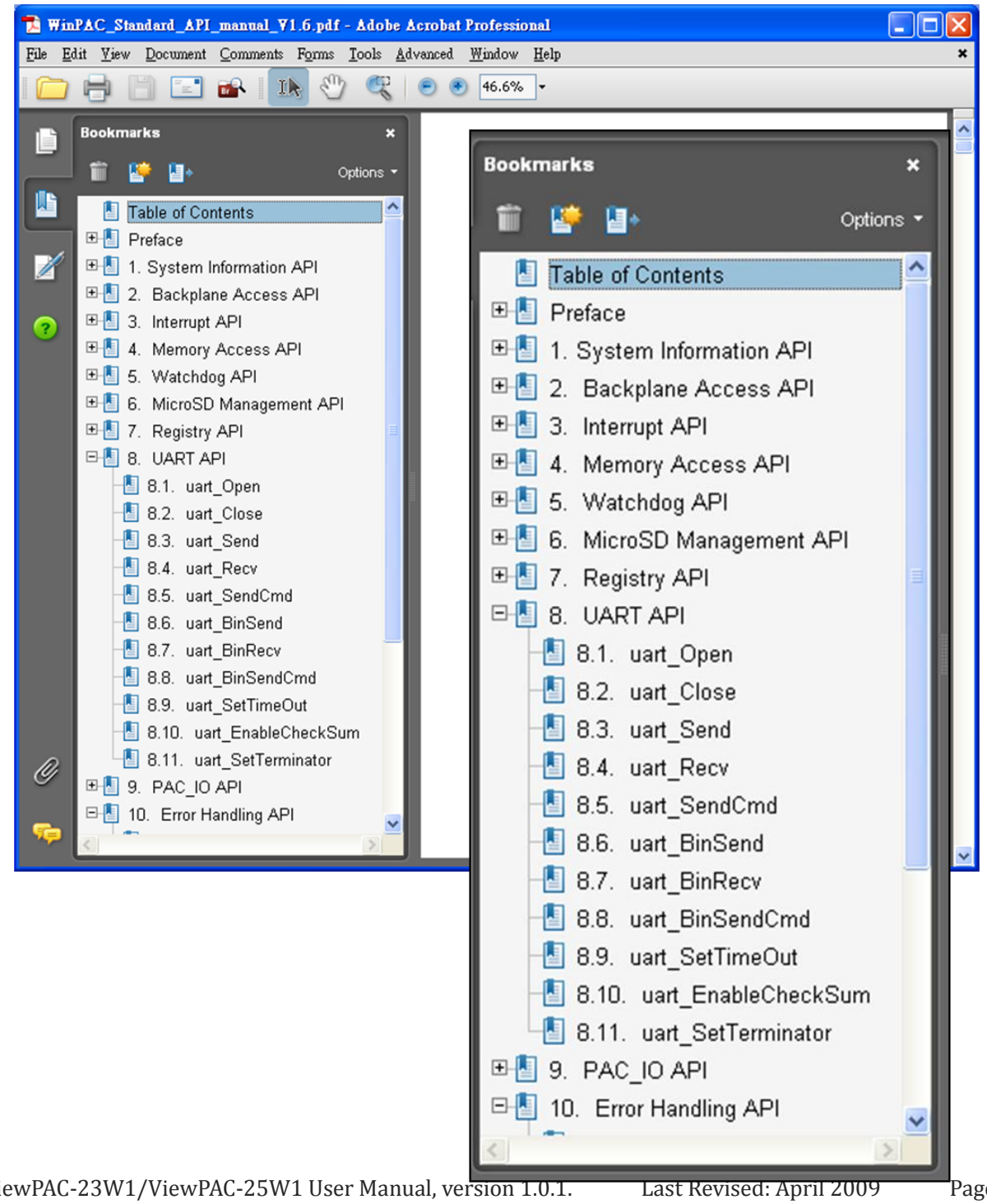
For full usage information regarding the description, prototype and the arguments of the functions, please refer to the “ViewPAC Standard API Manual” located at:

CD:\Napdos\vp-2000_ce50\Document\SDK_Document\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/document/sdk_document/ViewPAC_standard_api_manual_v1.3.pdf



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6.4. Your first program with eMebedded Visual C++

To create a demo program with eMbedded Visual C++ development tool includes the following main steps:

1. Create a new Forms-Based project
2. Configure compiler options
3. Design and Build an application program
4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

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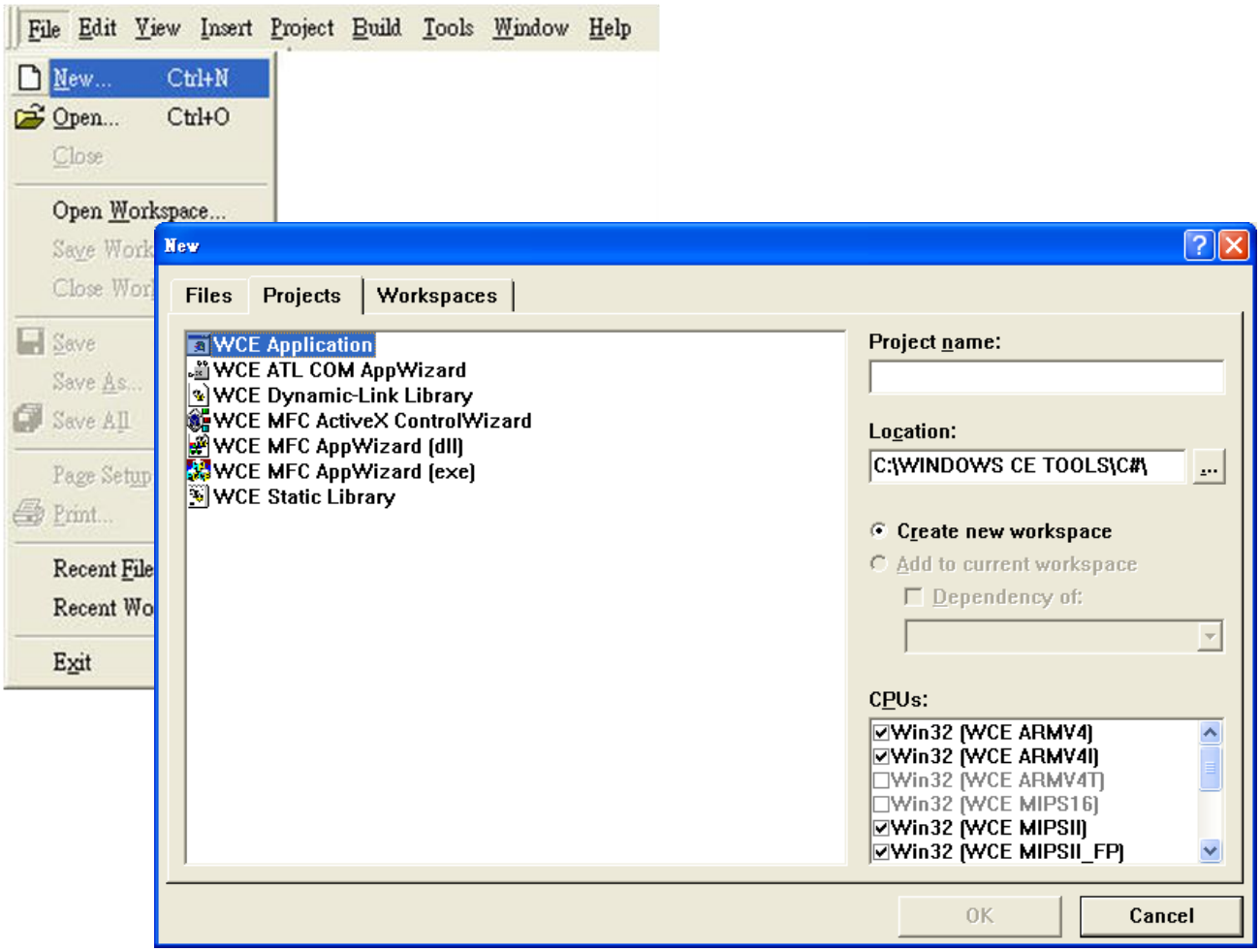
6.4.1. Create a new Forms-Based project

Step 1: Start the Microsoft Embedded Visual C++

Step 2: From the “File” menu, click the “New” command



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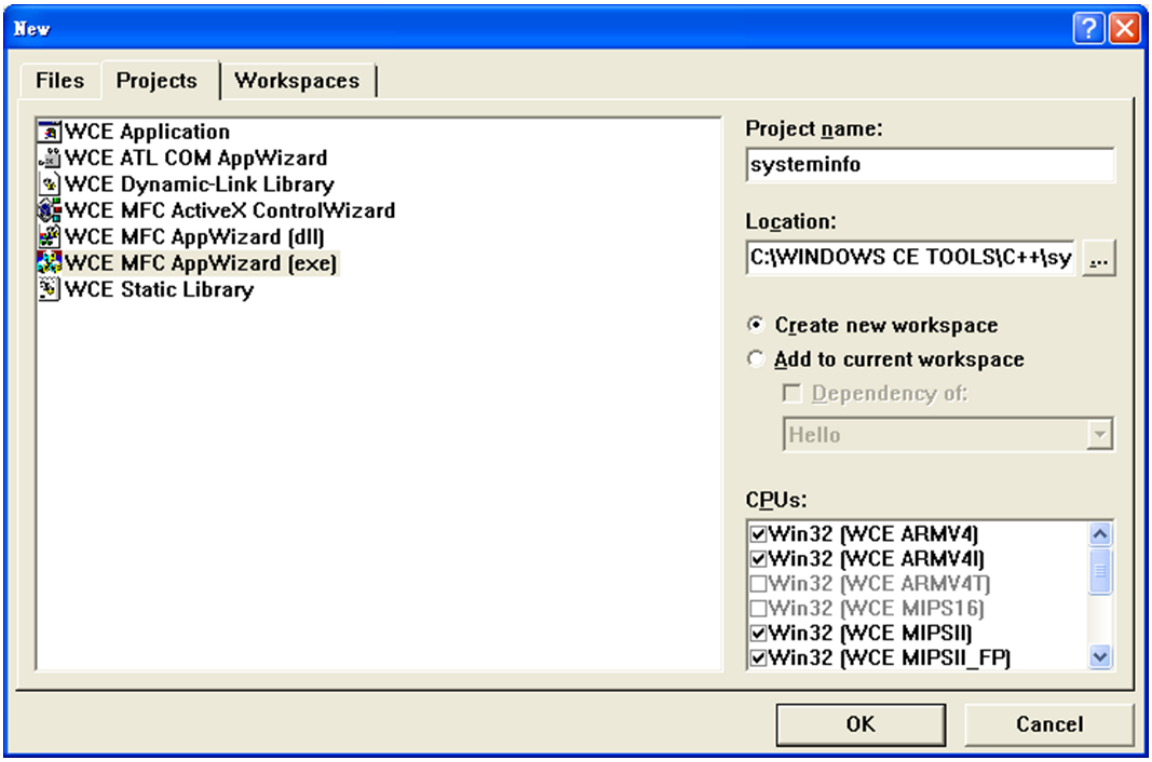
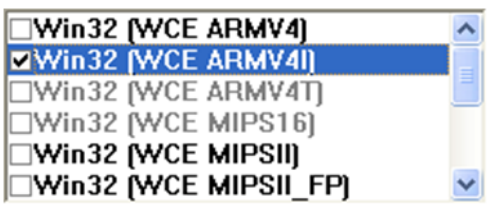
Step 3: In the “New” dialog, select the “Projects” tab and do the following in this order

- Select “WCE MFC AppWizard [exe]” from the list
- Type “systeminfo” in the “Project name” edit box
- Specify the directory in the “Location” field where you want to create the project
- In the “CPUs” list, select “Win32 [WCE ARMV4I]” and other options if necessary



The selected CPU type must have “Win32 [WCE ARMV4I]”



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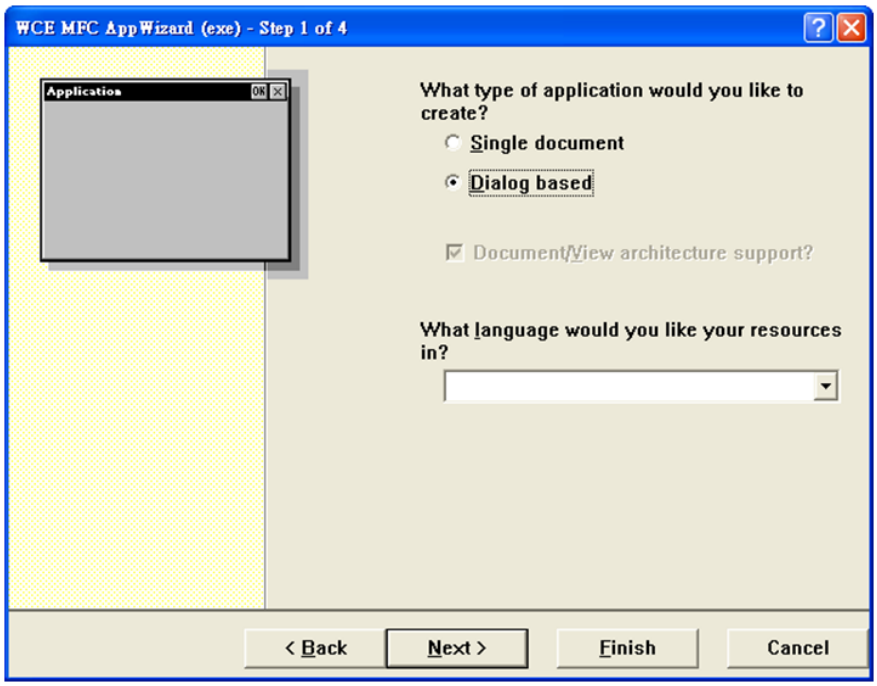
Step 4: Click the "OK" button to start the wizard

Step 5: On the first page of the wizard, select "Dialog based" option and then click the "Next" button to the next step



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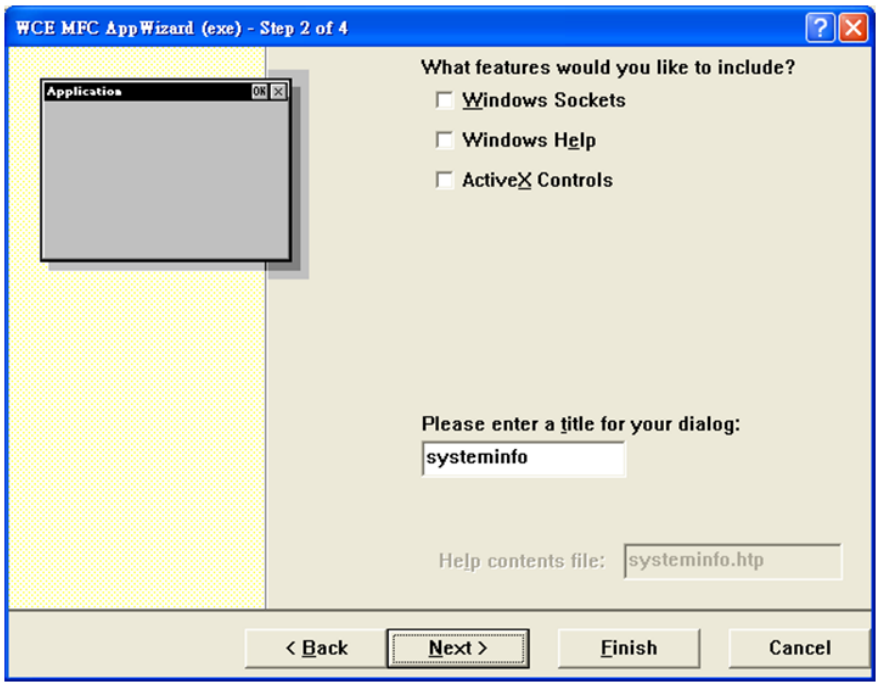
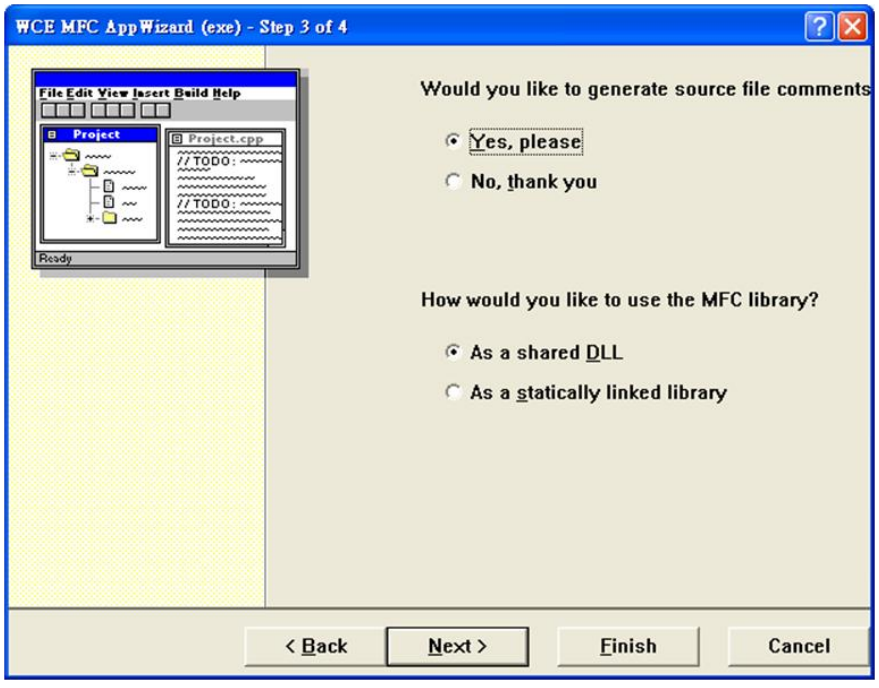
Step 6: On the next page of the wizard, leave all the options as they are, and then click the "Next" button to the next step



Step 7: On the next page of the wizard, leave all the options as they are, and then click the "Next" button to the next step



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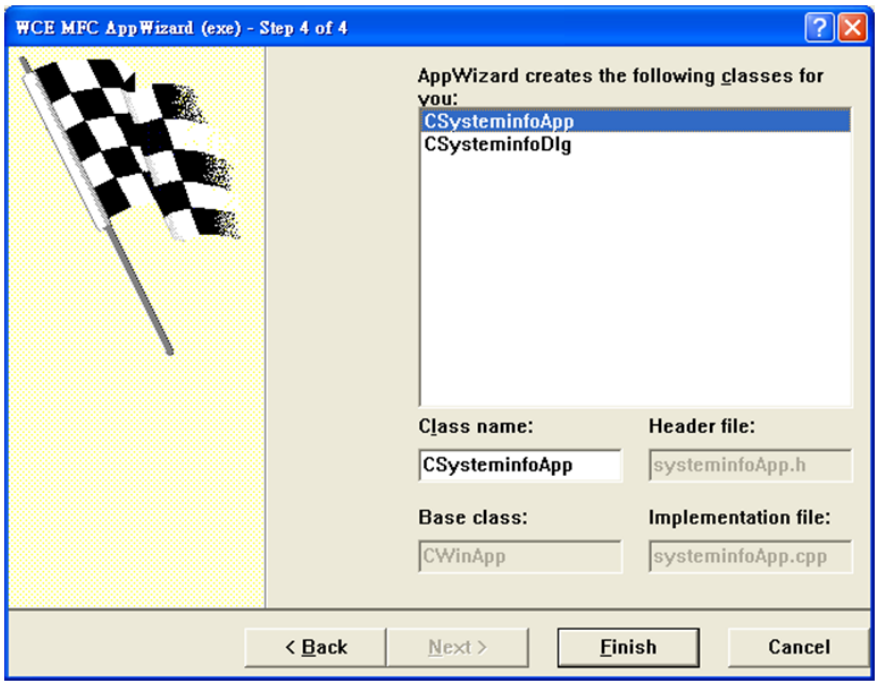
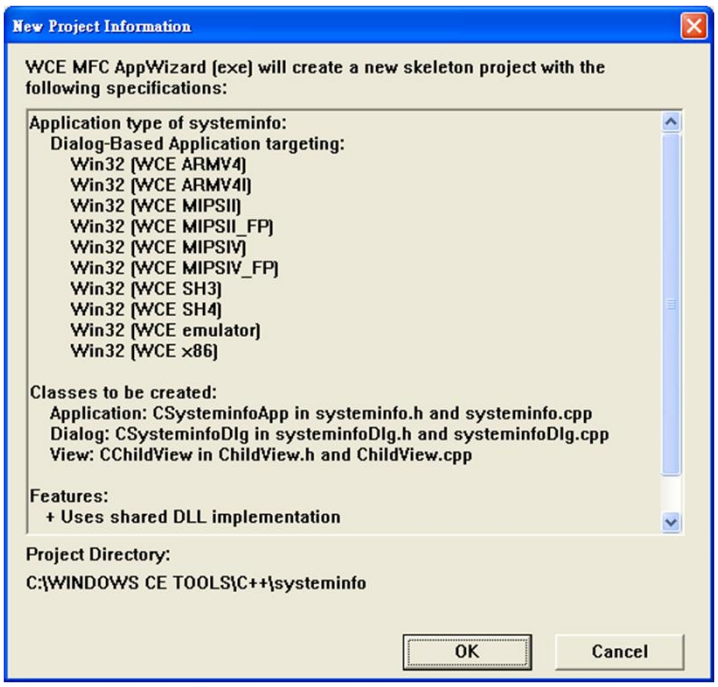
Step 8: On the next page of the wizard, leave all the options as they are, and then click the “Finish” button to the next step



Step 9: The final summary appears, click the “OK” button to complete the wizard



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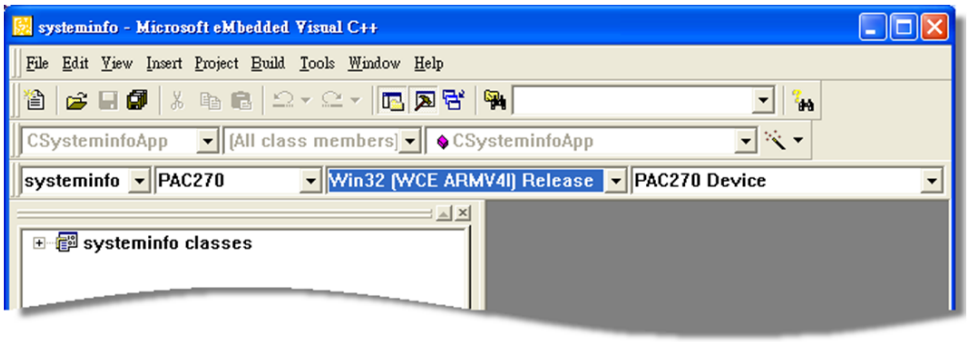
6.4.2. Configure compiler options

On the WCE configuration toolbar, select the "Win32 [WCE ARMV4] Release"



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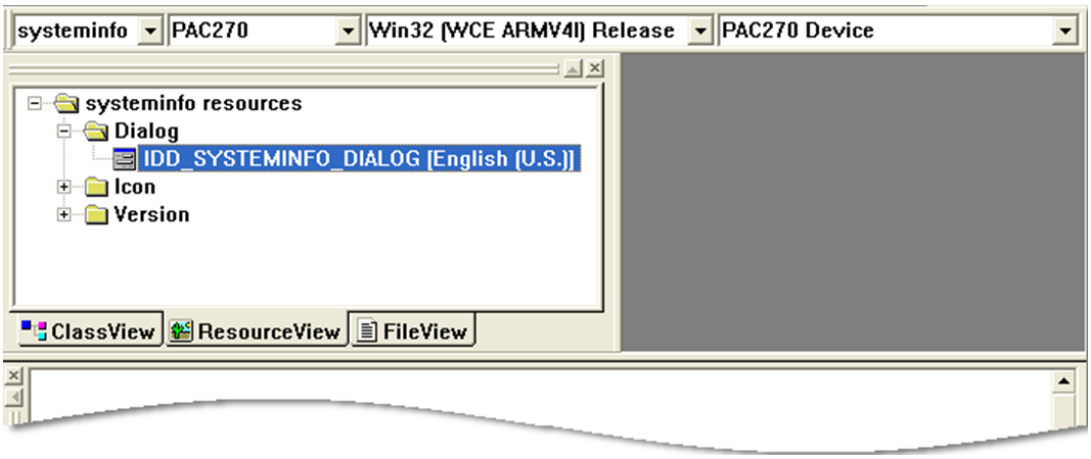
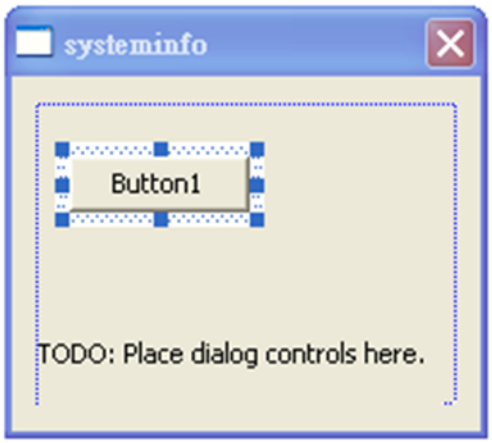
6.4.3. Design and Build an application program

Step 1: On the "Workspace" window, select the "ResourceView" tab and expand the "dialog" folder, and then double-click the "IDD_DEMO_DIALOG" to open the dialog box



Step 2: Add the ▢ " button" object in the "systeminfo" dialog box



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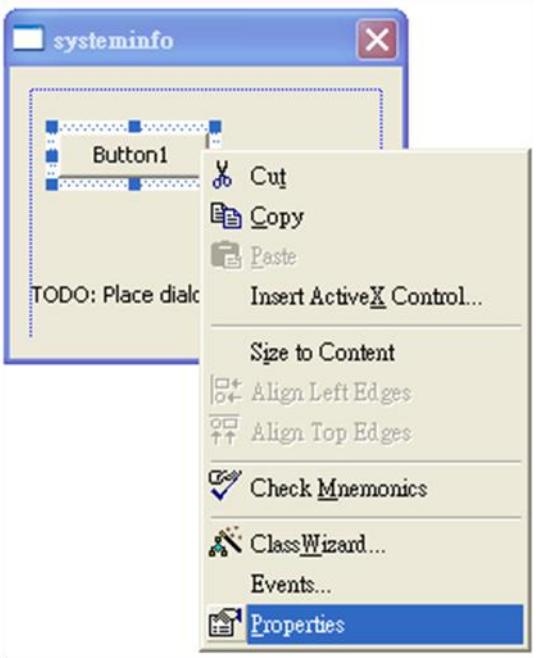
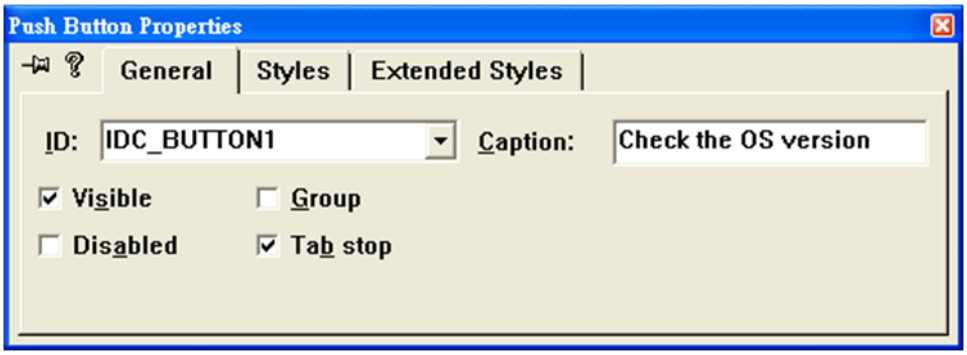
Step 3: In the "systeminfo" dialog box, right-click the button object and then click the "Properties" command



Step 4: Type the "Check the OS version" in the "Caption" edit box and then click the " close" button



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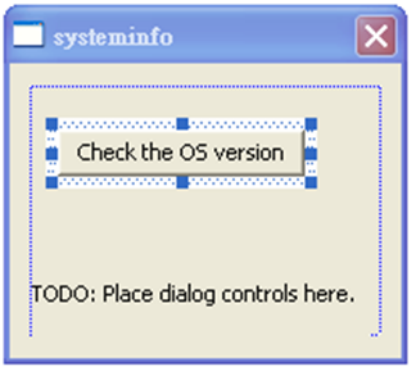
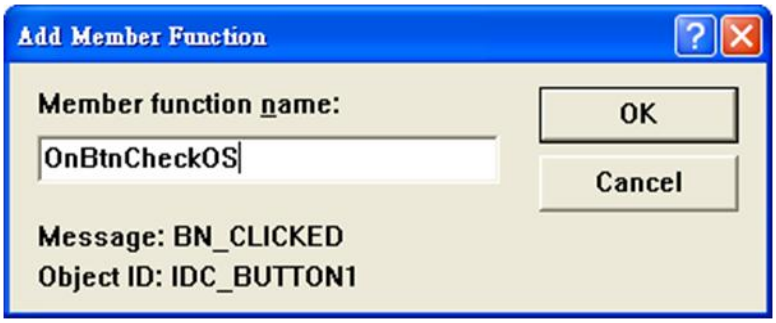
Step 5: In the "systeminfo" dialog box, double-Click the button object



Step 6: Type the "OnBtnCheckOS" in the "Member function name" edit box and then click the "OK" button



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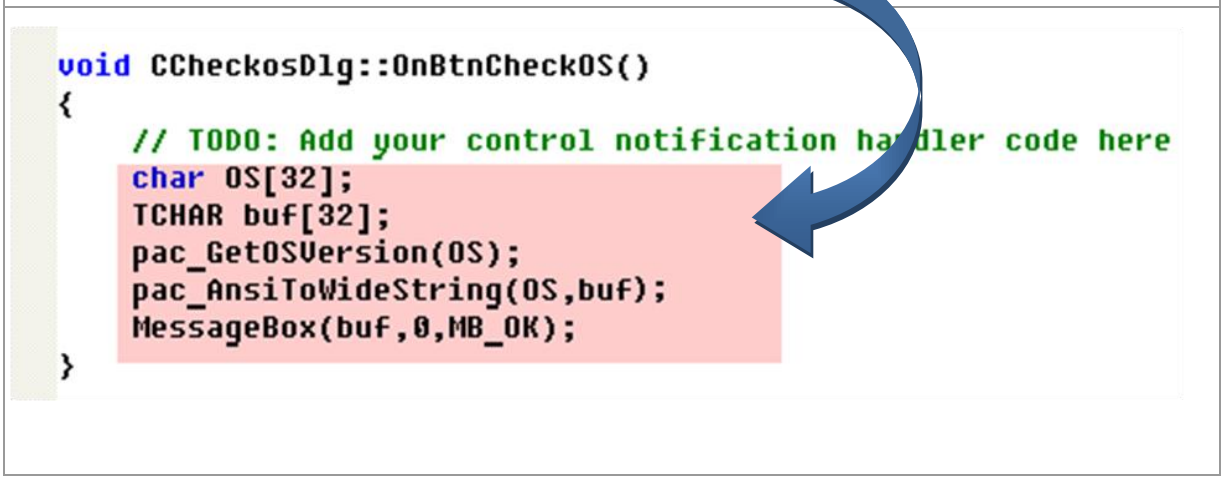
Step 7: Insert the following code into the Editor Window

```
char OS[32];
TCHAR buf[32];
pac_GetOSVersion(OS);
pac_AnsiToWideString(OS, buf);
MessageBox(buf,0,MB_OK);
```



Step 8: Insert the "#include "ViewPACSDK.h"" into the header area

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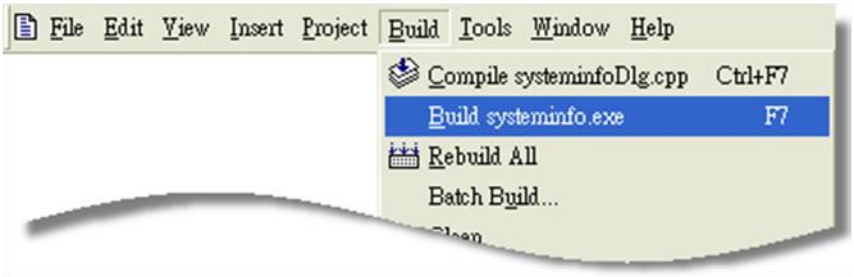
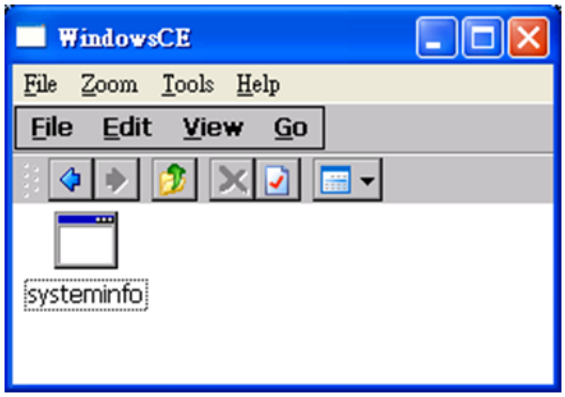
6.4.4. Execute the application program on ViewPAC

Step 1: On the "Build" menu, click the "Build systeminfo.exe" command



Step 2: Open the web browser and type the IP address to connect the FTP server of ViewPAC

Step 3: Upload the "systeminfo.exe" application to the ViewPAC via the ViewPAC FTP server



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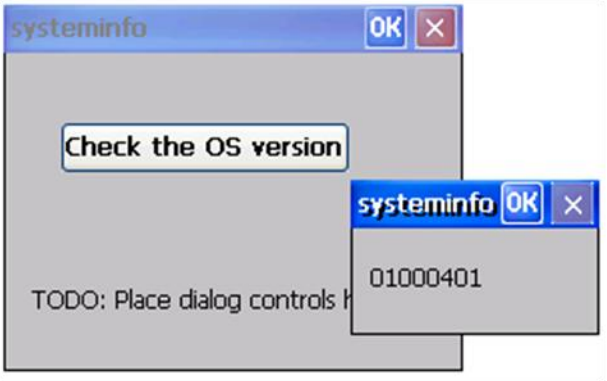
Step 4: On the ViewPAC, execute the uploaded file



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6.5. Your first program with C#

To create a demo program with C# development tool includes the following main steps:

1. Create a new project
2. Add project reference for an application
3. Design and Build an application program
4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

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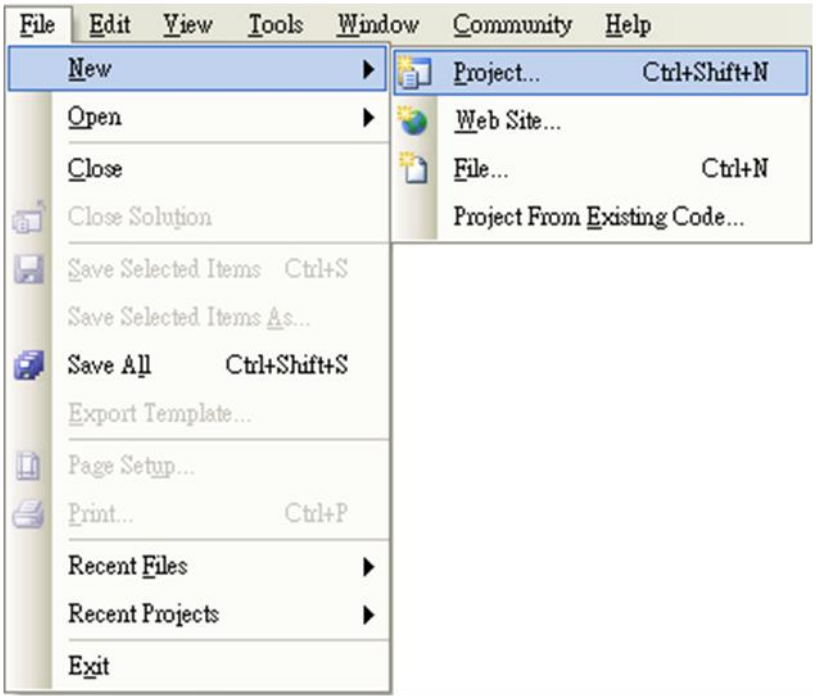
6.5.1. Create a new project

Step 1: Start Visual Studio 2005

Step 2: On the "File" menu, select the "New" command, and then click the "Project" command



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Step 3: In the “New Project” dialog box do the following in this order

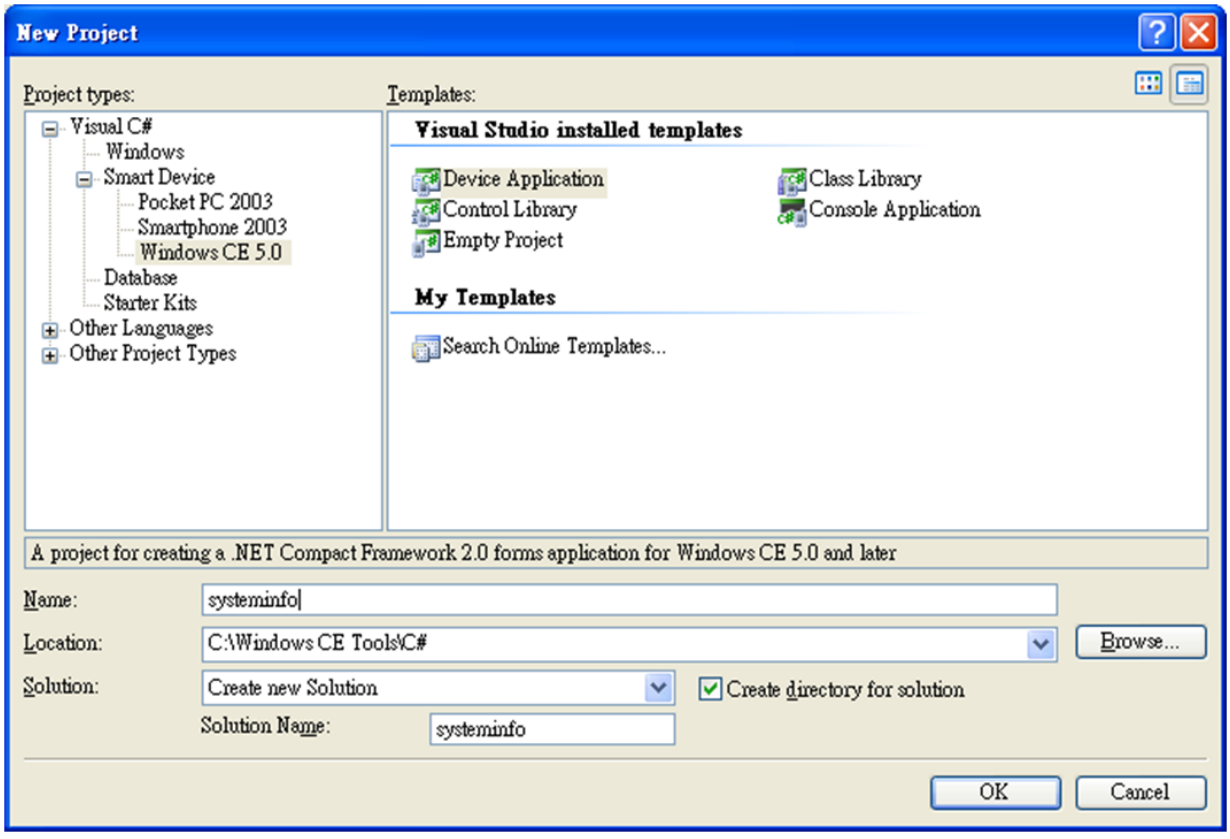
■ In the “Project types” list, select the “Visual C#” and expand the “Smart Device” folder,

and then select the “Windows CE 5.0”

■ Select “Device Application” from the “Templates” list

■ Type “systeminfo” in the “Name” edit box

■ Specify the directory in the “Location” field where you want to create the project



Step 4: Click OK to start creating a “systeminfo” project

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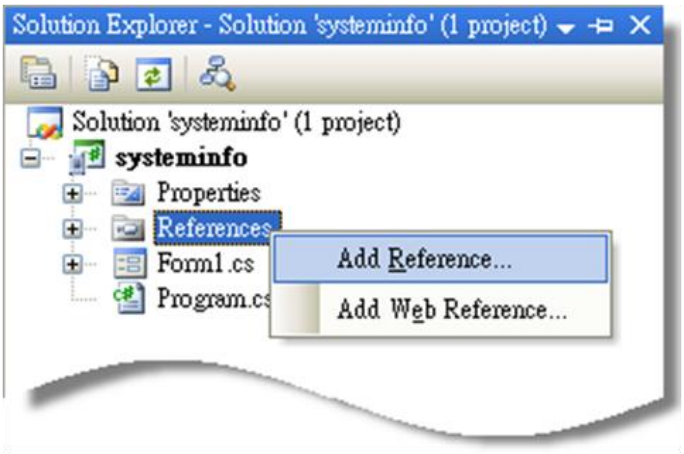
6.5.2. Add project reference for an application

Step 1: On the “Solution Explorer” window, right-click the “Reference” and then click the “Add Reference…” command



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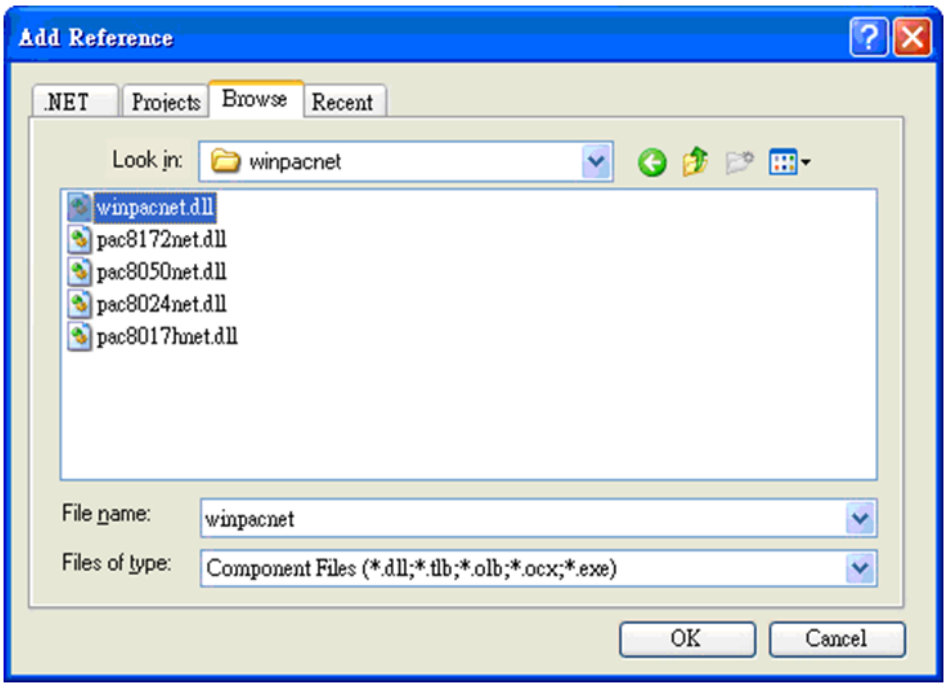
Step 2: In the "Add Reference" dialog box, select the "Browse" tab, and then specify the directory of the "ViewPACNet.dll" file in the "File name" field

The "ViewPACNet.dll" file can be obtained from:

CD:\Napdos\vp-2000_ce50\SDK\ViewPACNet\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/sdk/ViewPACNet/



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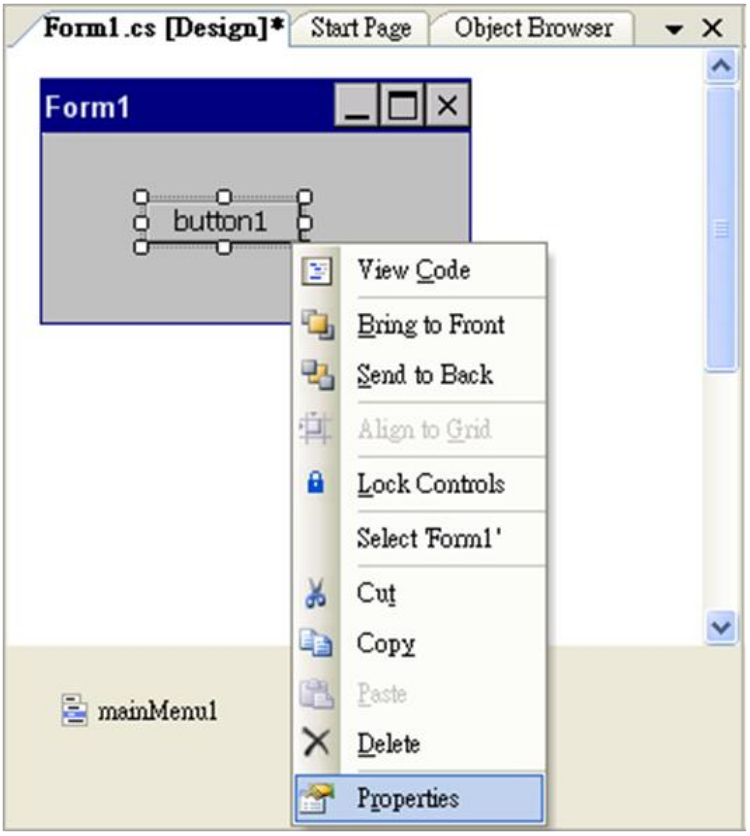
6.5.3. Design and Build an application program

Step 1: Add a " button" object in the "From1" dialog box

Step 2: Right-click the "button" object and click the "Properties" command



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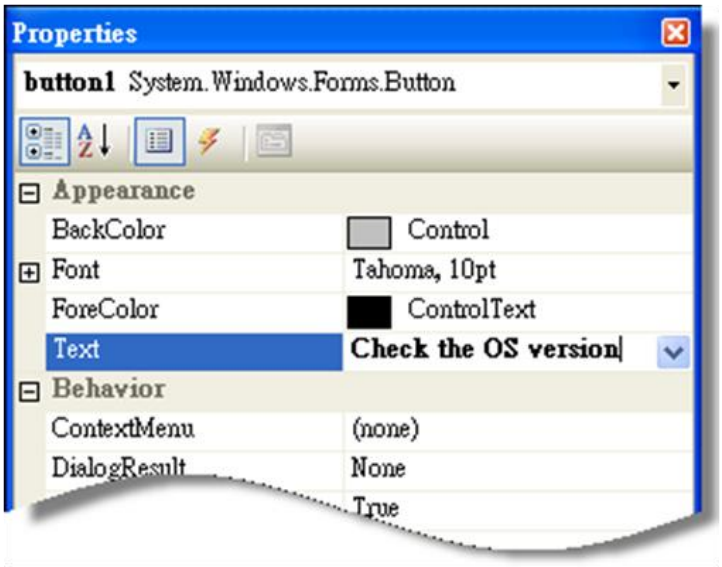
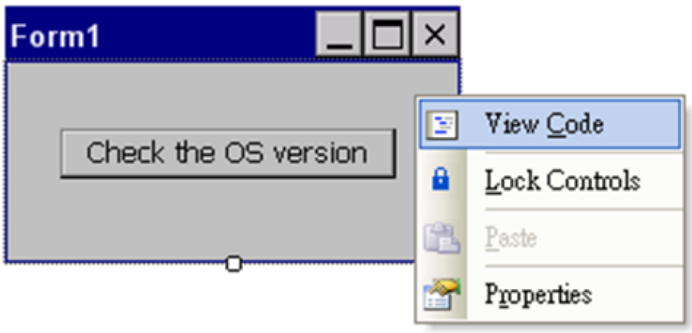
Step 3: On the "Properties" window, type "Check the OS version" in the "Text" edit box



Step 4: Right-click the "Form1" dialog box and click the "View Code" command to open the editor window



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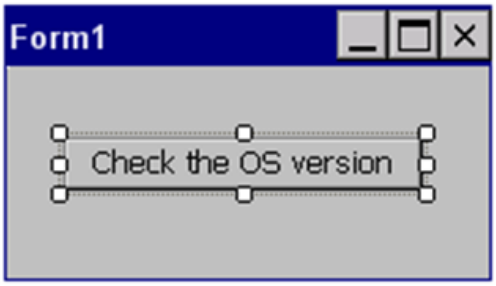
Step 5: Insert the "using ViewPACnet;" into the header area after "using System.Windows.Forms;"

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Text;
using System.Windows.Forms;
using WinPacNet;

namespace test2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
    }
}
```

Step 6: In the "Form1" dialog box, double-click the "button" object to open the editor window



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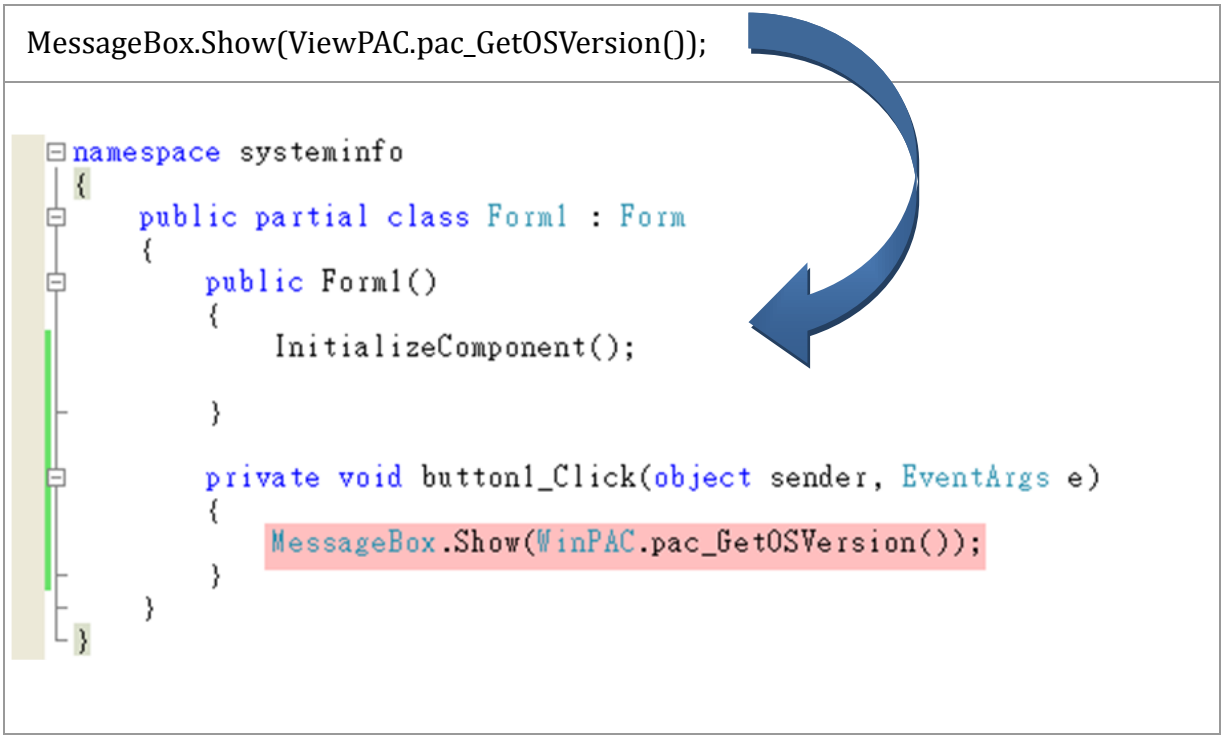
Step 7: Insert the following code in the Editor Window

MessageBox.Show(ViewPAC.pac_GetOSVersion());



```
namespace systeminfo
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();

        }

        private void button1_Click(object sender, EventArgs e)
        {
            MessageBox.Show(WinPAC.pac_GetOSVersion());
        }
    }
}
```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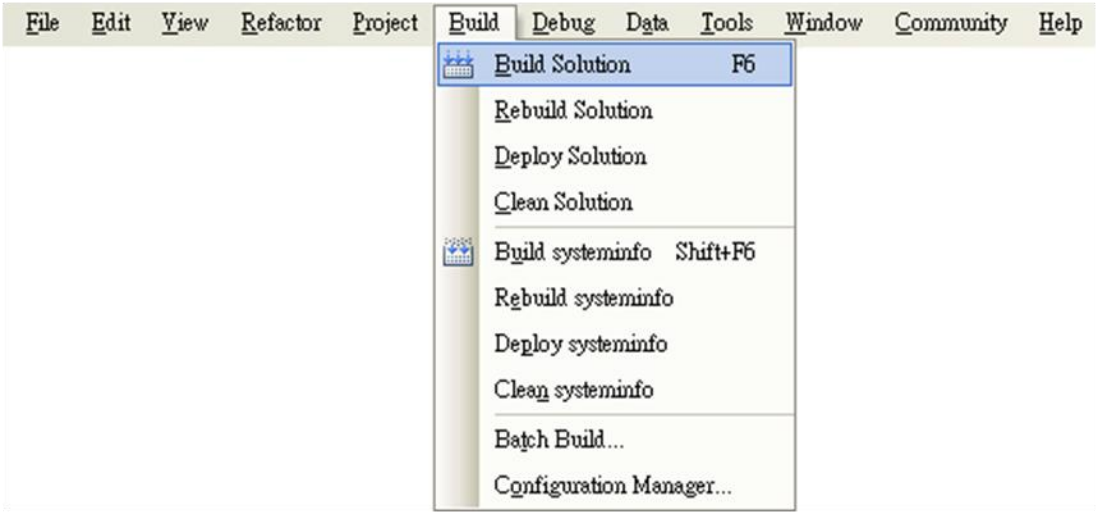
6.5.4. Execute the application on ViewPAC

Step 1: On the "Build" menu, click the "Build Solution" command



Step 2: Open the web browser and type the IP address to connect the FTP server of ViewPAC

Step 3: Upload the "systeminfo.exe" application and the corresponding "ViewPACnet.dll" file to the ViewPAC via the ViewPAC FTP server

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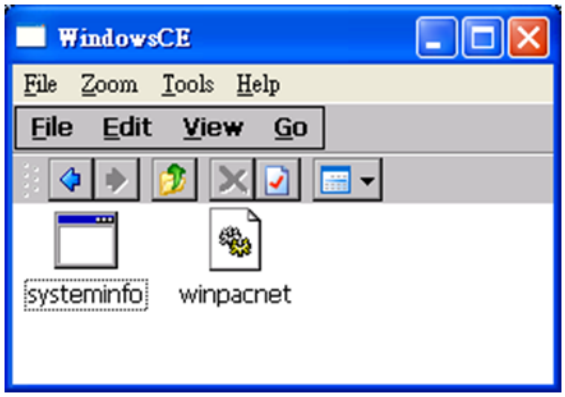
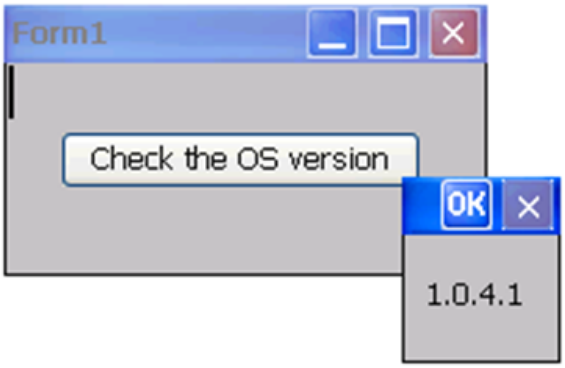
For applications programming in C# and VB.net with .net framework, when executing these application on the ViewPAC controller, the corresponding “ViewPACnet.dll” file must be in the same directory as the .exe file



Step 4: On the ViewPAC, execute the uploaded file



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6.6. Your first program with VB.net

To create a demo program with VB.net development tool includes the following main steps:

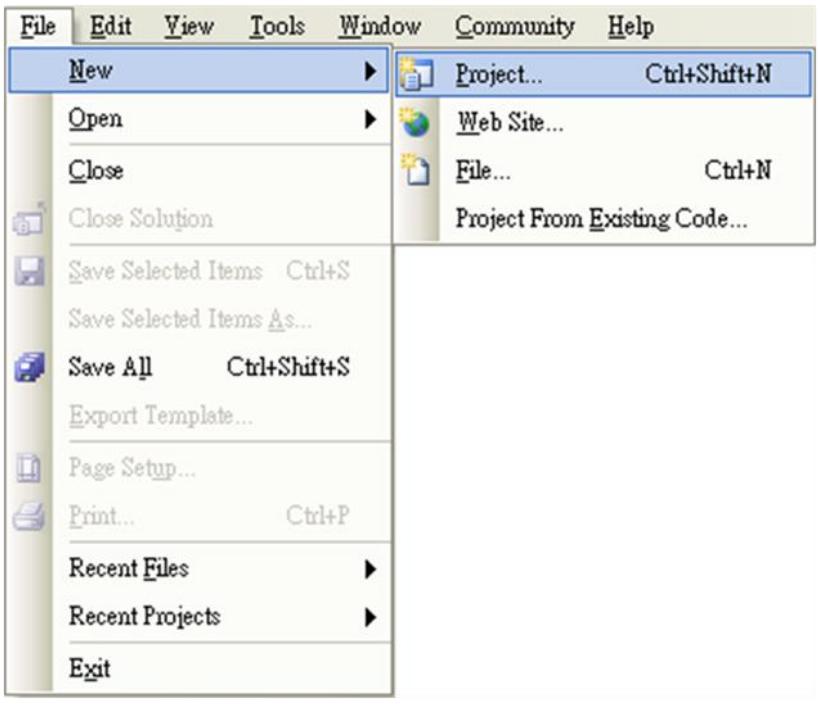
1. Create a new project
2. Add project reference for an application
3. Design and Build an application program
4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

6.6.1. Create a new project

Step 1: Start Visual Studio 2005

Step 2: On the "File" menu, select the "New" command, and then click the "Project" command



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Step 3: In the “New Project” dialog box do the following in this order

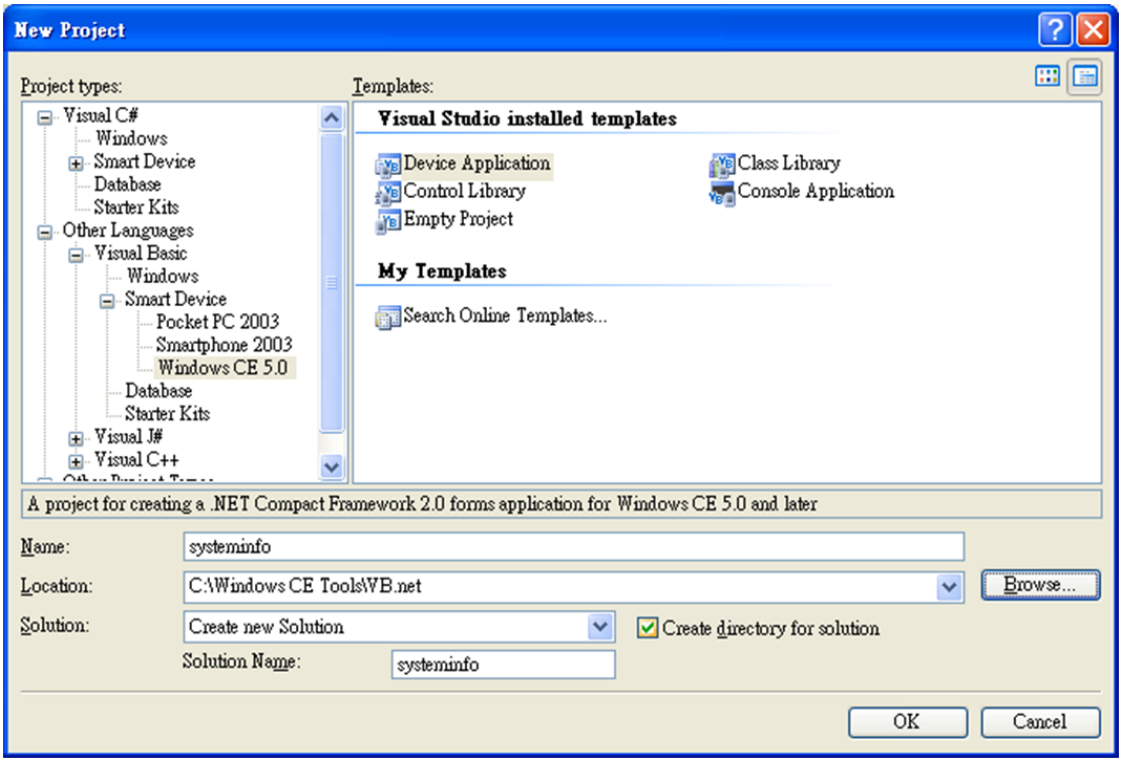
■ In the “Project types” list, select the “Other Languages” and expand the “Visual Basic”

and the “Smart Device” folder, and then select the “Windows CE 5.0”

■ Select the “Device Application” option from the “Templates” list

■ Type “systeminfo” in the “Name” entry box

■ Specify the directory in the “Location” field where you want to create the project



Step 4: Click OK to start creating a “systeminfo” project

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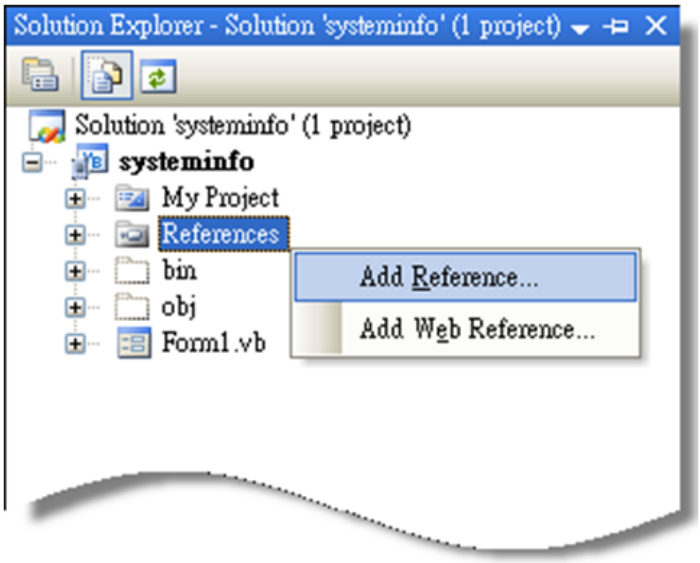
6.6.2. Add project reference for an application

Step 1: On the “Solution Explorer” window, right-click the “Reference” and then click the “Add Reference…” command



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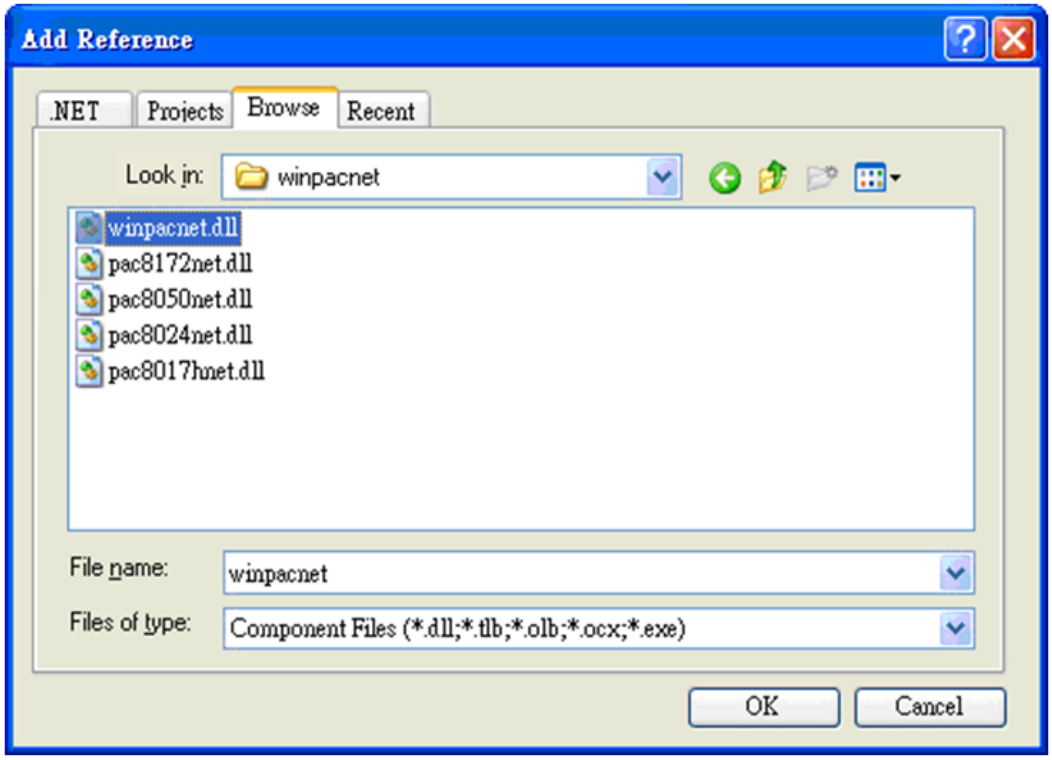
Step 2: In the "Add Reference" dialog box, select the "Browse" tab, and then specify the directory of the "ViewPACNet.dll" file in the "File name" field

The "ViewPACNet.dll" file can be obtained from:

CD:\Napdos\vp-2000_ce50\SDK\ViewPACNet\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/sdk/ViewPACnet/



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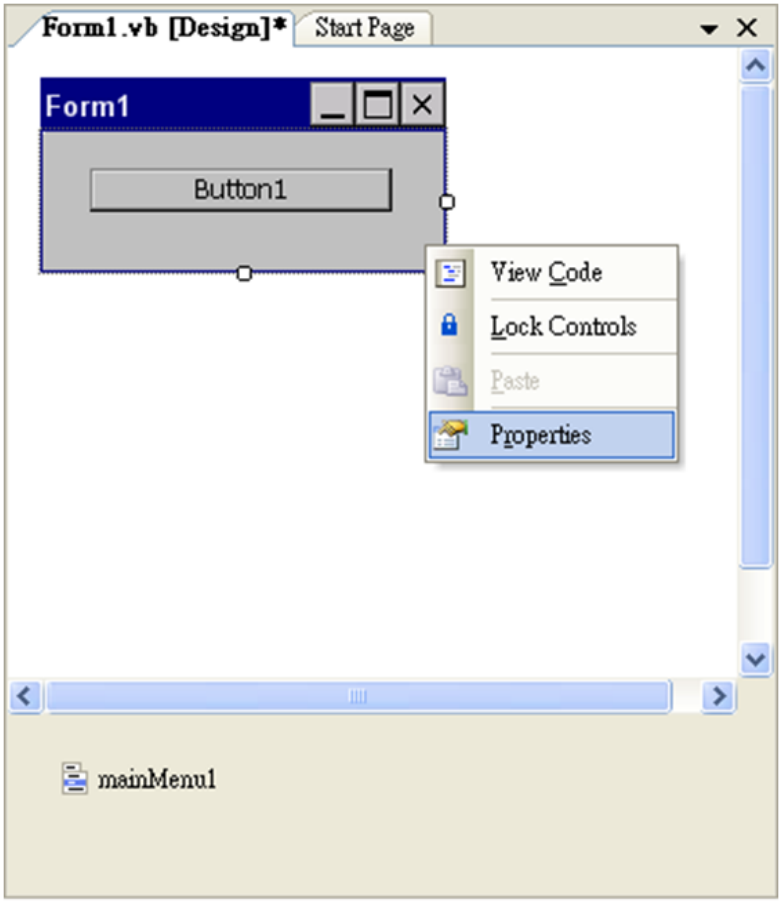
6.6.3. Design and Build an application program

Step 1: Add a " button" object in the "From1" dialog box

Step 2: Right-click the "button" object and click the "Properties" command



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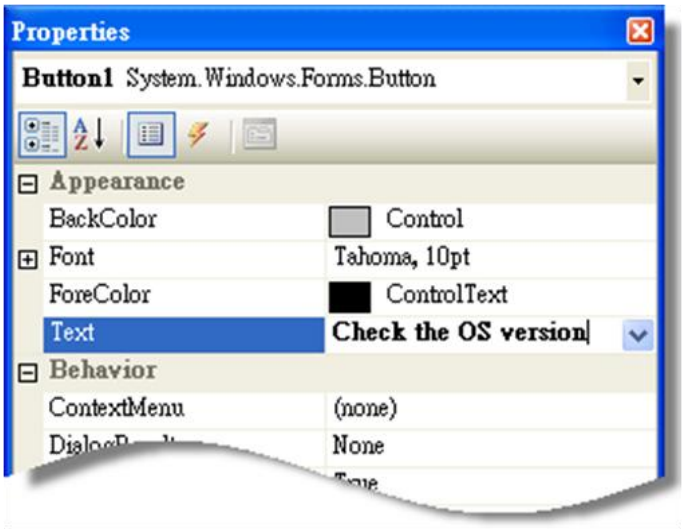
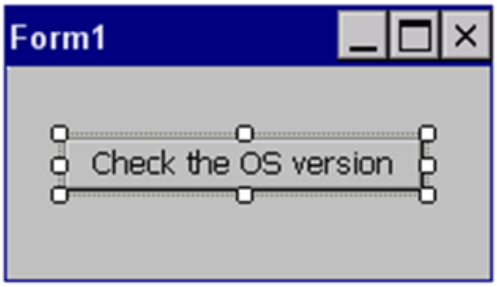
Step 3: On the "Properties" window, type "Check the OS version" in the "Text" edit box



Step 4: In the "Form1" dialog, double-click the button object to open the editor window



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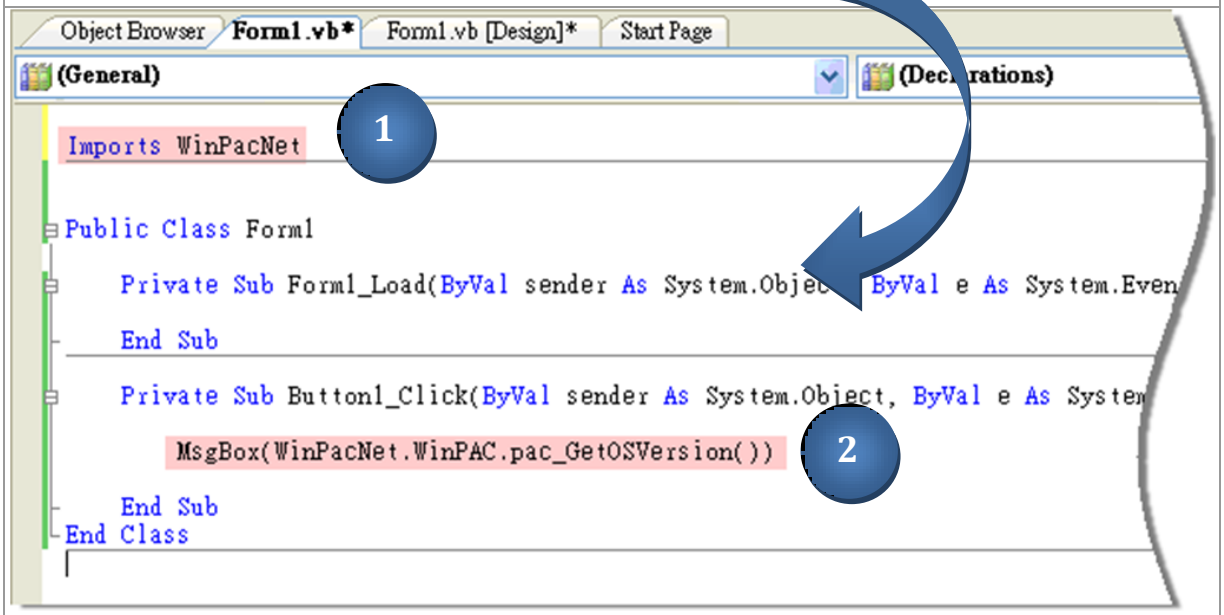
Step 5: Insert the following code in the Editor Window

1. Imports ViewPACNet
2. MessageBox(ViewPACNet.ViewPAC.pac_GetOSVersion(



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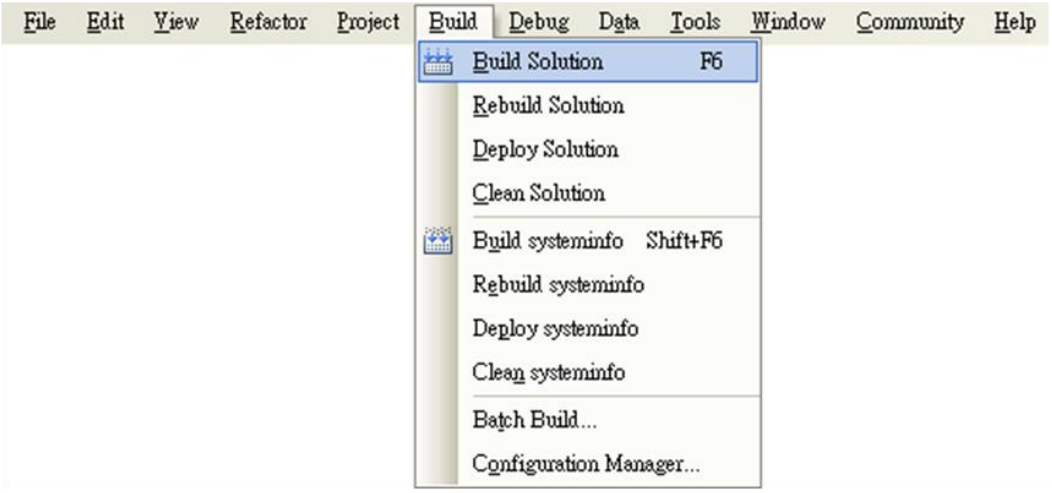
6.6.4. Execute the application on the ViewPAC

Step 1: On the "Build" menu, click the "Build Solution" command



Step 2: Open the web browser and type the IP address to connect the FTP server of ViewPAC

Step 3: Upload the "systeminfo.exe" application and the corresponding "ViewPACnet.dll" file to the ViewPAC via the ViewPAC FTP server

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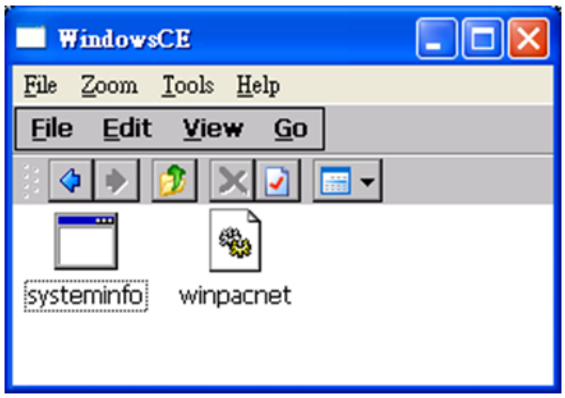
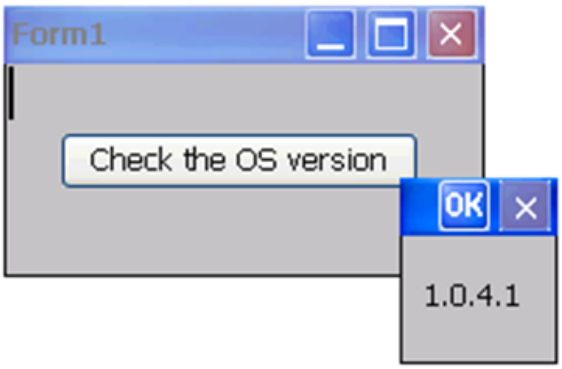
For applications programming in C# and VB.net with .net framework, when executing these application on the ViewPAC controller, the corresponding “ViewPACnet.dll” file must be in the same directory as the .exe file.



Step 4: On the ViewPAC, execute the uploaded file



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7. API AND DEMO REFERENCE

There are several demo programs that have been designed for your controller. You can examine the demo source code, which includes numerous comments, to familiarize yourself with the ViewPAC API. This will allow developing your own applications quickly by modifying these demo programs. The following details the contents of the ViewPAC demo programs.

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Standard API:

eVC:

Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.
backplane	backplaneinfo	Retrieves information about the DIP switch, backplane ID and slot count.
	Interrupt	Shows how to gain the interrupt advantage
memoryaccess	memory	Shows how to read/write date values from/to EEPROM
watchdog	watchdog	Displays how the watchdog operate
microsd	microsd	Shows how to enables/disables Micro SD
registry	registry	Shows how to read/write date values from/to registry
uart	diag	Shows how to read the name of local I/O modules via UART

These demo programs can be obtained from:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\Standard\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/

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dotnet (VB.net and C#) :

Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.
backplane	backplaneinfo	Retrieves information about the DIP switch, backplane ID and slot count.
memoryaccess	memory	Shows how to read/write date values from/to EEPROM
	battery_backup_sram	Shows how to read or write to the battery backup
watchdog	watchdog	Displays how the watchdog operate
microsd	microsd_management	Shows how to enables/disables Micro SD
registry	registry	Shows how to read/write date values from/to registry
uart	diag	Shows how to read the name of local I/O modules via UART

For VB.net application, these demo programs can be obtained from:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\DotNET\VB.NET\Standard

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/vb.net/standard/

For C# application, these demo programs can be obtained from:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\DotNET\C#\Standard

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/

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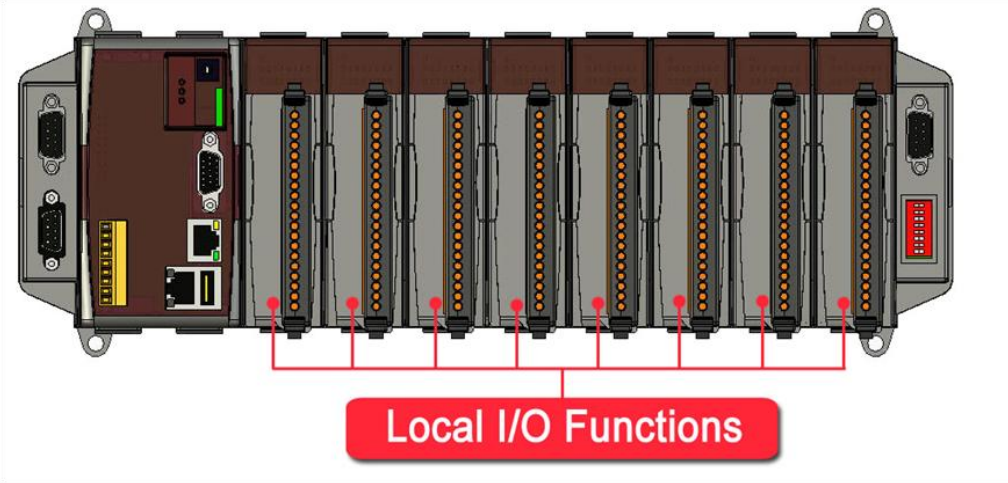
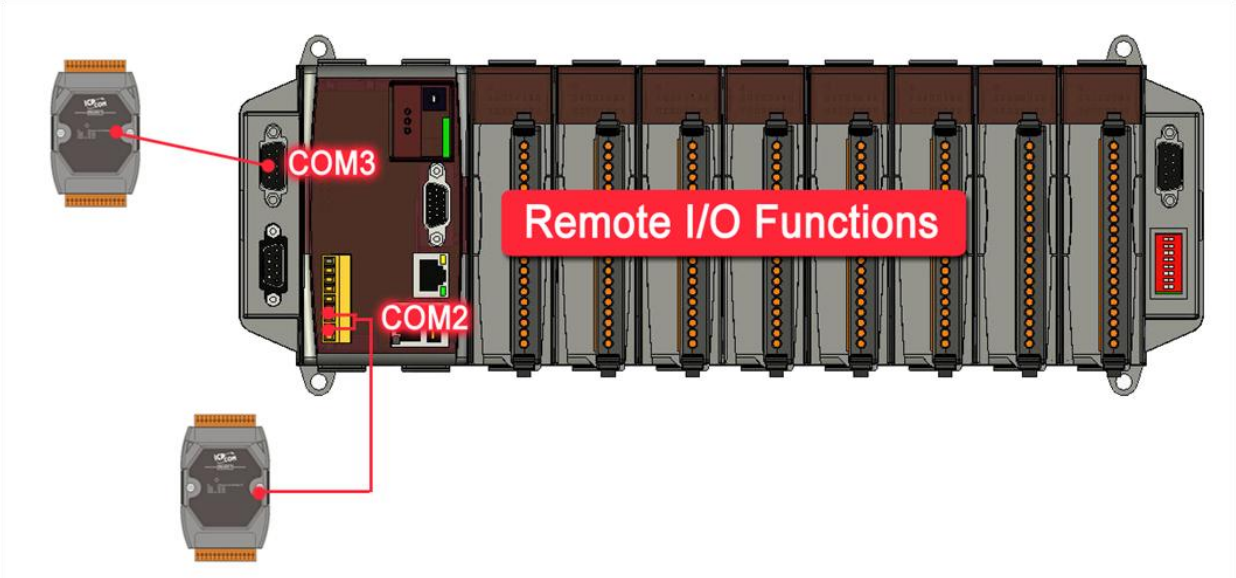
PAC_IO:

Local (IO in slot):



Remote:



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eVC:

Folder	Demo	Explanation
Local	find_io	Shows how to retrieve the module names and types which plugged in the ViewPAC.
	8k_di	Shows how to read the DI values of DI module. This demo program is used by 8K series DI modules.
	8k_do	Shows how to write the DO values to DO module. This demo program is used by 8K series DO modules.
	8k_dio	Shows how to read the DI and the DO values of the DIO module. This demo program is used by 8K series DIO modules.
	87k_basic	Shows how to send/receive a command/response application. This demo program is used by 87K series modules.
	87K_demo	Shows how use uart API and the IO modules located as slots. This demo program is used by 87K series modules.
	87k_ai	Shows how to read the AI values of AI module. This demo program is used by 87K series AI modules.
	87k_ao	Shows how to write the AO values to AO module. This demo program is used by 87K series AO modules.
	87k_di	Shows how to read the DI values of DI module. This demo program is used by 87K series DI modules.
	87k_do	Shows how to write the DO values to DO module. This demo program is used by 87K series DO modules.
	87k_dio	Shows how to read the DI and the DO values of the DIO module. This demo program is used by 87K series DIO modules.
Remote	7k87k_basic	Shows how to send/receive a command/response

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Folder	Demo	Explanation
		application. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_ai	Shows how to read the AI values of AI module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_ao	Shows how to write the AO values to AO module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_di	Shows how to read the DI values of DI module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_do	Shows how to write the DO values to DO module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_dio	Shows how to read the DI and the DO values of the DIO module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.

These demo programs can be obtained from:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\PAC_IO\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/

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7.1. Principles with Applications

There are a number of principles are introduced for using ViewPAC API, which are fundamental have to know if you use demos or develop applications with ViewPAC API.

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7.1.1. Component synchronism between Host PC and ViewPAC

ICP DAS will continue to improve ViewPAC SDK to make you develop applications easily and quickly. Each updated ViewPAC SDK may contain header files, libraries, document …etc.

The ViewPAC SDK installation files are divided into the following parts:

1. ViewPAC SDK updates for eMbedded Visual C++
2. ViewPAC SDK updates for dotnet

ViewPAC SDK updates for eMbedded Visual C++

Step 1: Get the latest version of the eMbedded Visual C++ components

The latest version of the eMbedded Visual C++ components can be obtained from:

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/sdk/ViewPACsdk/

Step 2: Copy the latest version of header files and libraries to Host PC.

The header files are located at:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include

The libraries are located at:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib

Step 3: Copy the latest version of DLL files to ViewPAC

The DLL files are located at:

\System_Disk\ICPDAS\System

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ViewPAC SDK updates for dotnet

Step 1: Get the latest version of the dotnet components

The latest version of the eMbedded Visual C++ components can be obtained from:

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/sdk/ViewPACnet/

Step 2: Copy the latest version of DLL to Host PC and ViewPAC

The DLL files on Host PC are located at anywhere only the solution can reference it.

The DLL files on ViewPAC are located at the same directory as the .exe file.

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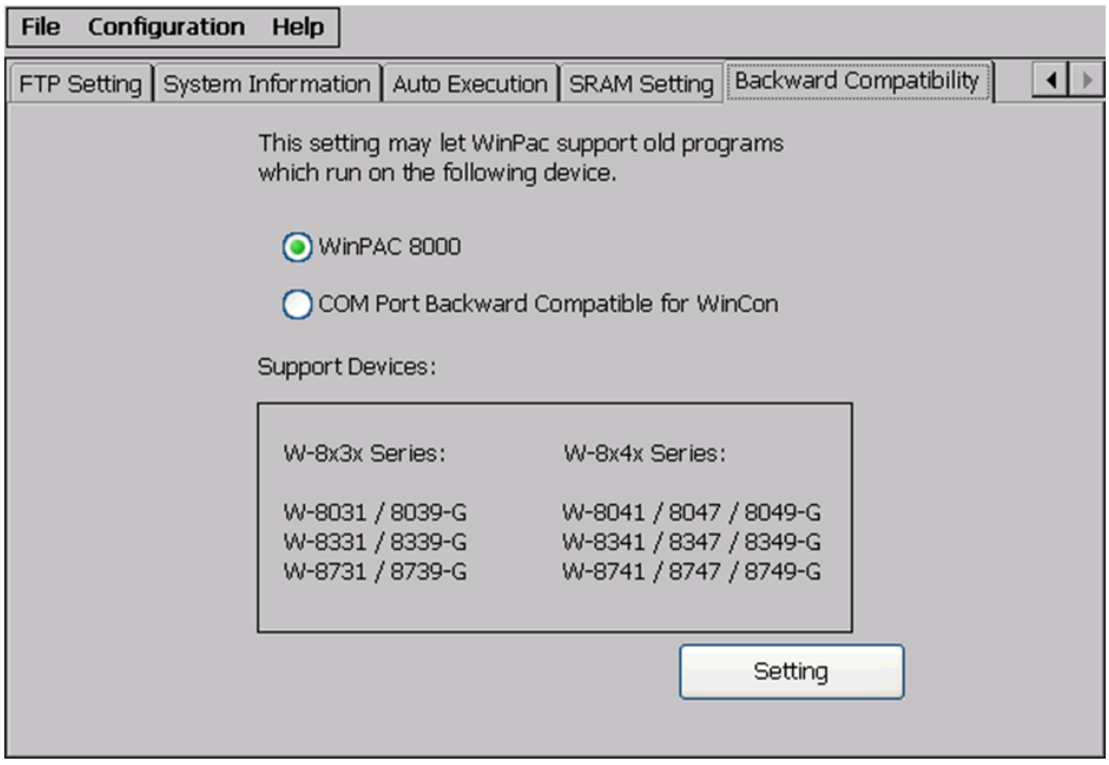
7.1.2. Backward compatible

The ViewPAC is backwards compatible with WinCon-8000. Therefore, the old WinCon programs can run on ViewPAC without any modification, you just have to configure the "COM Port Backward Compatible" function on ViewPAC Utility and copy the applications (.exe file) from WinCon-8000 to ViewPAC.



After performing above-mentioned procedures, if the program can't run on ViewPAC, there may be some project configure with old WinCon settings. For more detailed information for adjusting the old ViewPAC settings, please refer to: **"Appendix E. How to recompile WinCon programs"**

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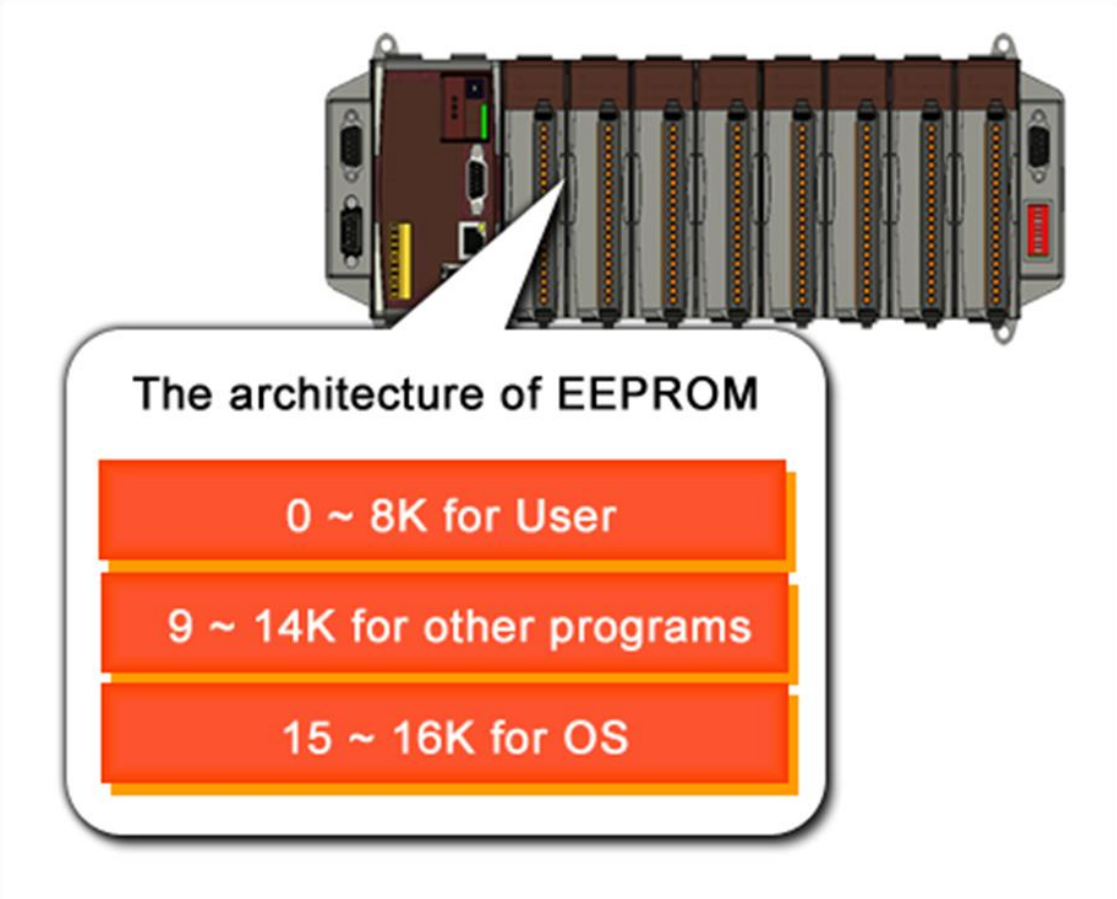
7.1.3. EEPROM allocation

The ViewPAC controller has a 16KB of EEPROM that is allocated for user, program and OS as shown below:



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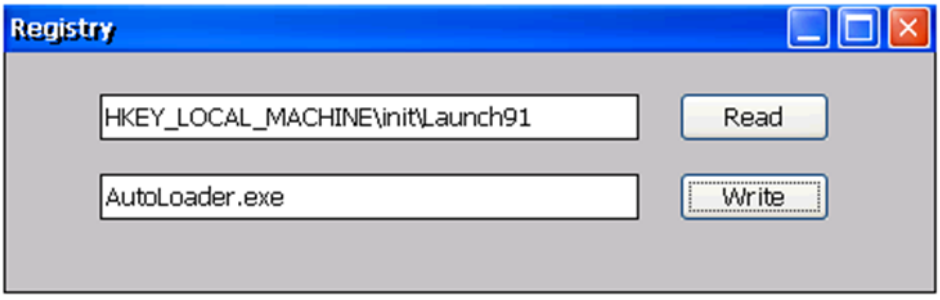
7.1.4. Registry Mechanism

The API provides functions and demos to set registry, the registry is a database used to store important settings and configuration information for ViewPAC. The registry contains information and settings for all the hardware, software, users, and preferences of the ViewPAC OS. Therefore, be careful for editing the registry functions and demos.



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7.2. Demo programs with eMbedded Visual C++

Examples are good way to understand the ViewPAC SDK. This section includes the examples which extract from ViewPAC demo and cover most of the common usages of each ViewPAC API for using eMbedded Visual C++.

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7.2.1. Demo programs for system information

System operations include basic operation, such as reboot and changing slot and Version display, including OS, Eboot, SDK, Serial Number, and Mac address.

How to use system information functions

Here is an example which extract from “systeminfo” of ViewPAC demos

Download the complete demo:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\Standard\System\Systeminfo\

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ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/system/systeminfo/

The example illustrates how to:

1. Read the rotary ID

pac_GetRotaryID();

2. Read the Serial Number

pac_GetSerialNumber(LPSTR SerialNumber);

3. Read the OS version

pac_GetOSVersion(LPSTR os_version);

4. Read the CPU version

pac_GetCPUVersion(LPSTR cpu_version);

5. Read the Eboot version

pac_GetEbootVersion(LPSTR eboot_version);

6. Read the SDK version

pac_GetSDKVersion(LPSTR sdk_version);

7. Read the MAC address Version

pac_GetMacAddress(BYTE LAN, LPSTR MacAddr);

8. Turn on/off LED

pac_EnableLED(BOOL bFlag);

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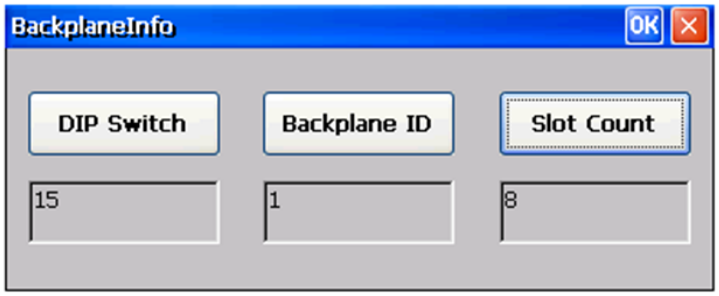
7.2.2. Demo programs for backplane access

Backplane operations include hot plug, interrupt and backplane information, such as NET ID and backplane version.

How to use backplane access functions

Here is an example which extract from “backplaneinfo” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\Standard\Backplane\BackplaneInfo\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/backplane/backplaneinfo/

The example illustrates how to:

1. Read the DIP Switch

pac_GetDIPSwitch();

2. Read the backplane ID

pac_GetBackplaneID(LPSTR backplane_version);

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3. Read the slot count

pac_GetSlotCount();

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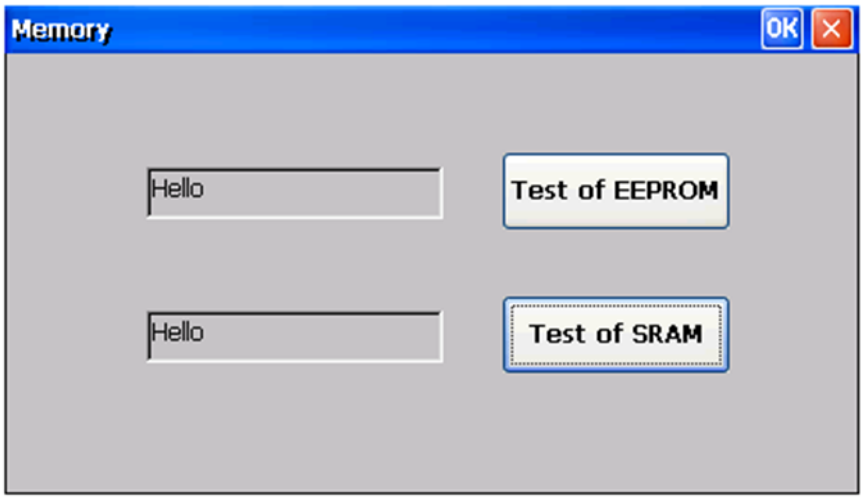
7.2.3. Demo programs for memory access

Memory operations include basic management operations, such as reading from and writing to the EEPROM or SRAM.

How to use memory access functions

Here is an example which extract from “memory” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\Standard\MemoryAccess\Memory\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/memoryaccess/memory/

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The example illustrates how to:

1. Enable the EEPROM

pac_EnableEEPROM(bool);

2. Write the EEPROM

pac_WriteMemory(DWORD address, LPBYTE lpBuffer, DWORD dwLength, int mem_type);

3. Read the EEPROM

pac_ReadMemory(DWORD address, LPBYTE lpBuffer, DWORD dwLength, int mem_type);

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7.2.4. Demo programs for watchdog

Watchdog operations include basic management operations, such as turning on and refreshing.

How to use watchdog functions

Here is an example which extract from “watchdog” of ViewPAC demos

Download the complete demo:

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\Standard\WatchDog\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/watchdog/

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The example illustrates how to:

1. Enable the watchdog

pac_EnableWatchDog(int wdt, DWORD value);

2. Refresh the watchdog

pac_RefreshWatchDog(int wdt);

3. Disable the watchdog

pac_DisableWatchDog(int wdt);

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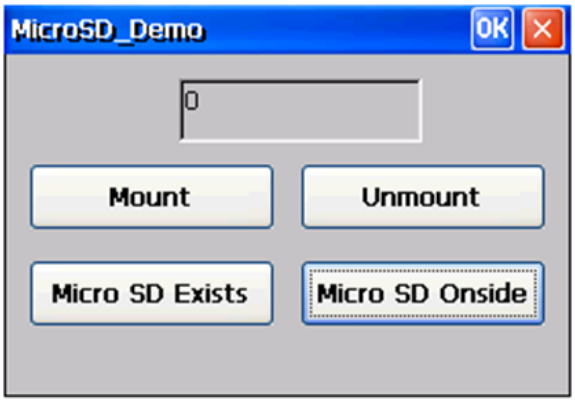
7.2.5. Demo programs for MicroSD management

MicroSD operations include basic management operations, such as mounting and unmounting.

How to use MicroSD management functions

Here is an example which extract from “microsd_management” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\Standard\MicroSD\MicroSD\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/microsd/microsd/

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The example illustrates how to:

1. Check the Micro SD whether has been standby ready or not

pac_SDExists();

2. Mount the Micro SD

pac_SDMount(LPTSTR szPartitionName);

3. Dismount the Micro SD

pac_SDUnmount();

4. Check the Micro SD whether on-side or not

pac_SDOnside();

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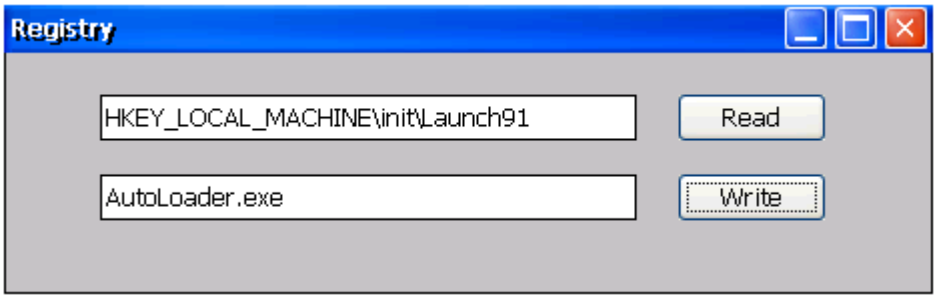
7.2.6. Demo programs for registry

Registry operations include basic management operations, such as reading from and writing to the registry.

How to use registry functions

Here is an example which extract from “Registry” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\Standard\Registry\Registry\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/registry/registry/

The incorrect use of registry demo can cause serious problems that may require you to run Quick mode to reload them.

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The example illustrates how to:

1. Assign the specified registry key date which type is string

pac_RegSetString(LPCTSTR KeyName, LPCTSTR assignStr, DWORD dwLength);

2. Read the value of the specified registry key

pac_RegGetDWORD(LPCTSTR KeyName, LPTSTR lpData, DWORD dwLength);

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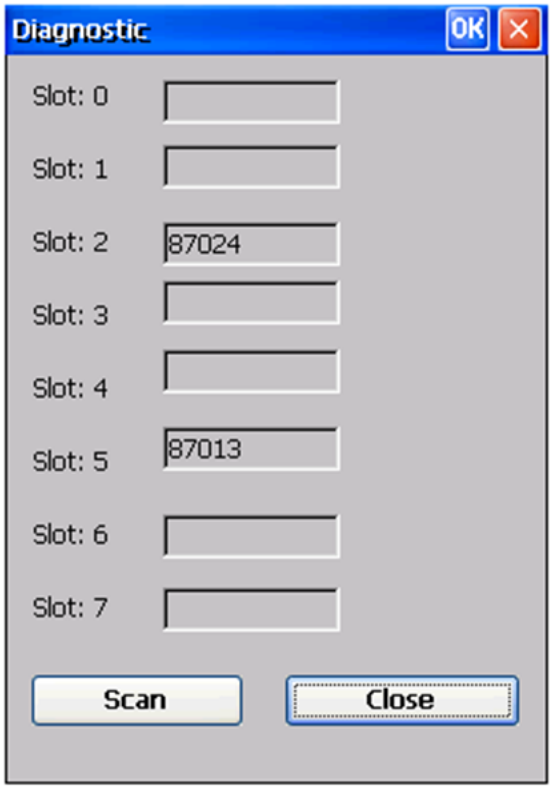
7.2.7. Demo programs for UART

Uart operations include basic management operations, such as opening, sending, receiving, and closing.

How to use UART functions

Here is an example which extract from “diag” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\Standard\UART\Diag\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/uart/diag/

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The example illustrates how to:

1. Open the COM port and specifies the baud rate, parity bits and stop bits

uart_Open(LPCSTR ConnectionString);

2. Close the COM port which have been opened

uart_Close(HANDLE hPort);

3. Send commands through the COM port which have been opened

uart_SendCmd(HANDLE hPort, LPCSTR cmd, LPSTR szResult);

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7.2.8. Demo programs for PAC_IO

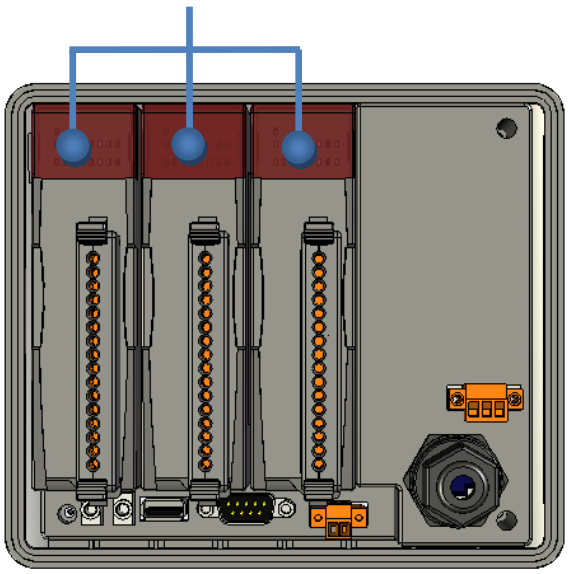
PAC_IO API supports to operate IO modules not only in slot but in remote mode.

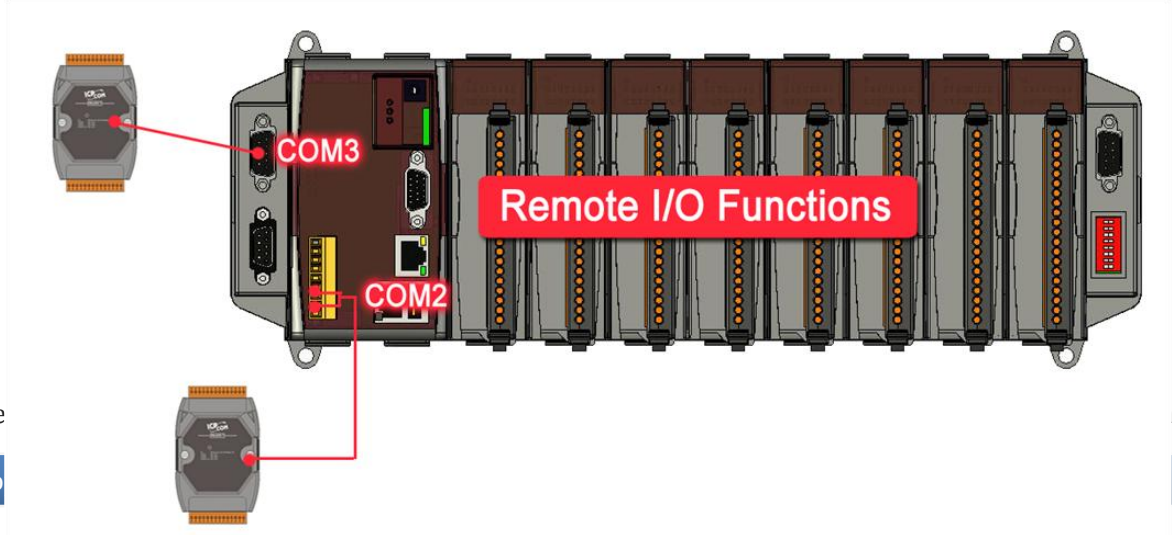
In the local mode, the slot range is from 0 to 7.

Local (IO in slot):

In the remote mode, the slot range is from 0 to 255.

Remote:

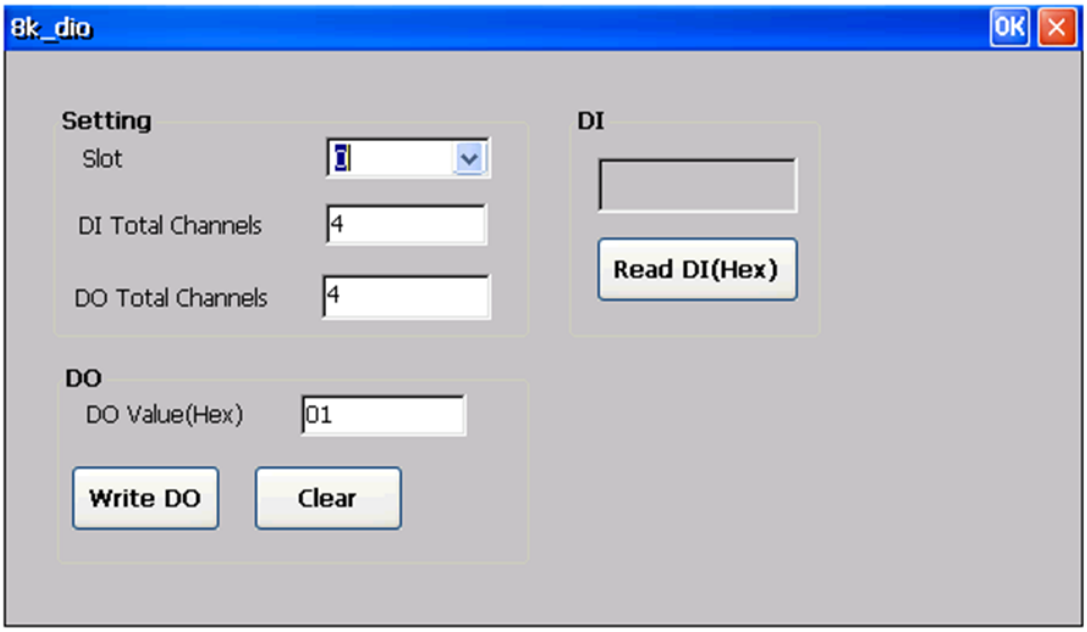




How to use Local I/O functions

Here are some examples

Example 1: The example extract from “8k_dio” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Local\8k_dio\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/local/8k_dio/

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The example illustrates how to:

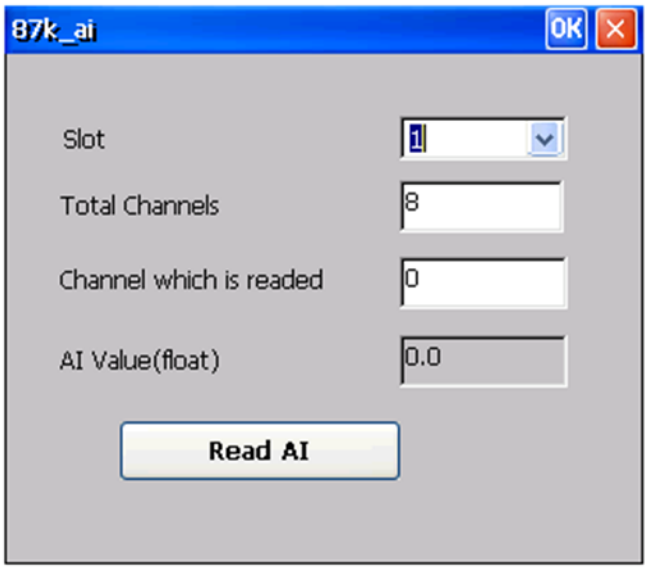
1. Read the DI value of the DI module

pac_ReadDI(HANDLE hPort, int slot, int iDI_TotalCh, DWORD *lDI_Value);

2. Write the DO value to the DO modules

pac_WriteDO(HANDLE hPort, int slot, int iDO_TotalCh, DWORD lDO_Value);

Example 2: The example extract from "87k_ai" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Local\87k_ai\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/local/87k_ai/

The example illustrates how to:

Read the engineering-mode AI value of the AI module

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pac_ReadAI(hPort, iSlot,iChannel,iAI_TotalCh, &fValue);

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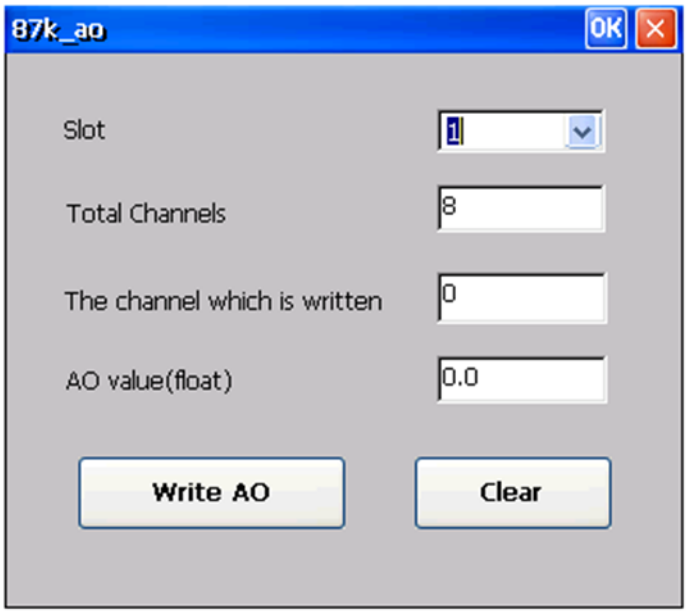
Example 3: The example extract from "87k_ao" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Local\87k_ao\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/local/87k_ao/

The example illustrates how to:

Write the AO value to the AO modules

pac_WriteAO(hPort, iSlot,iChannel,iAO_TotalCh,fValue);

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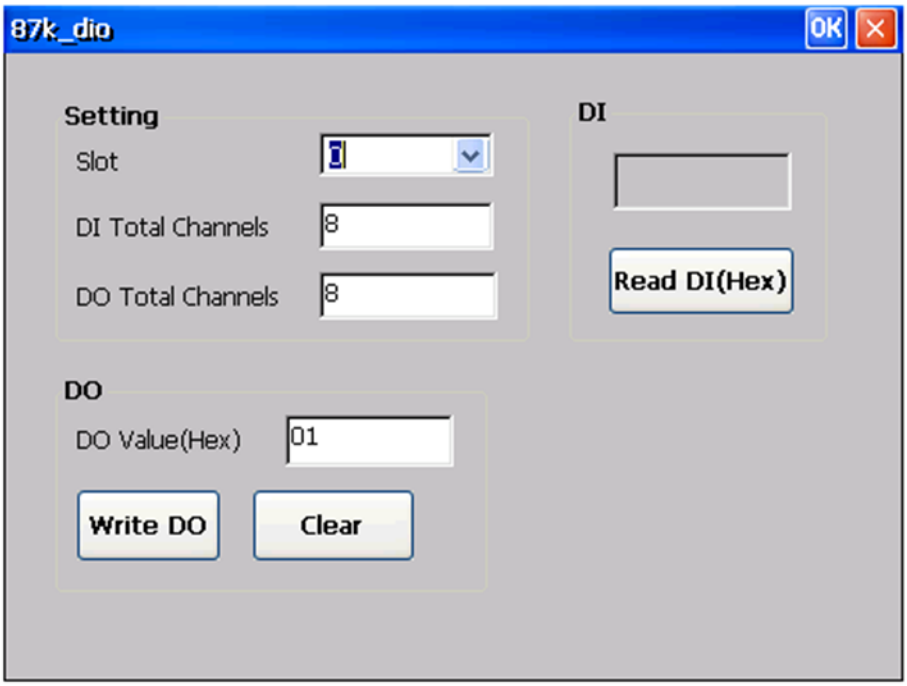
Example 4: The example extract from "87k_dio" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Local\87k_dio\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/local/87k_dio/

The example illustrates how to:

Read the DI and the DO values of the DIO module

pac_ReadDIO(HANDLE hPort, int slot, int iDI_TotalCh, int iDO_TotalCh, DWORD* lDI_Value, DWORD* lDO_Value);

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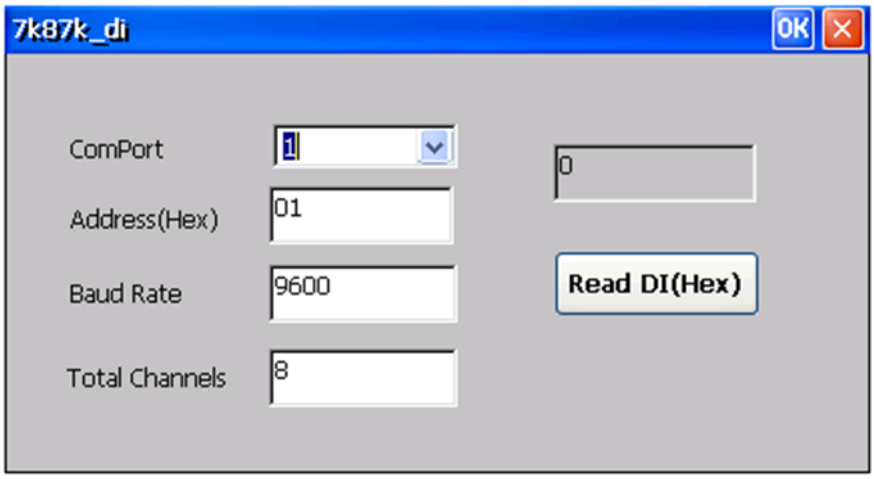
How to use remote I/O functions

Here are some examples.

Example 1: The example extract from "7k87k_di" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Remote\7K87k_di\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/remote/7k87k_di/

The example illustrates how to:

Read the DI value of the DI module

pac_ReadDI(HANDLE hPort, int PAC_REMOTE_IO (iAddr) , int iDI_TotalCh, DWORD *lDI_Value);

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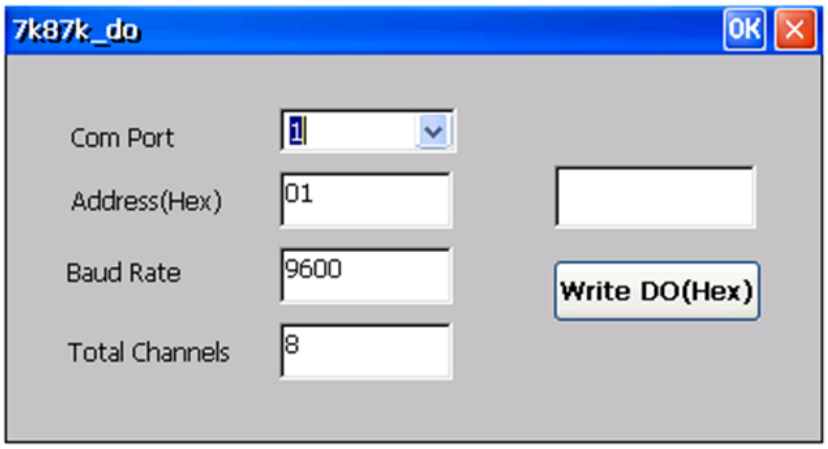
Example 2: The example extract from "7k87k_do" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Remote\7k87k_do\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/remote/7k87k_do/

The example illustrates how to:

Write the DO value to the DO modules

pac_WriteDO(HANDLE hPort, int PAC_REMOTE_IO (iAddr) , int iDO_TotalCh, DWORD lDO_Value);

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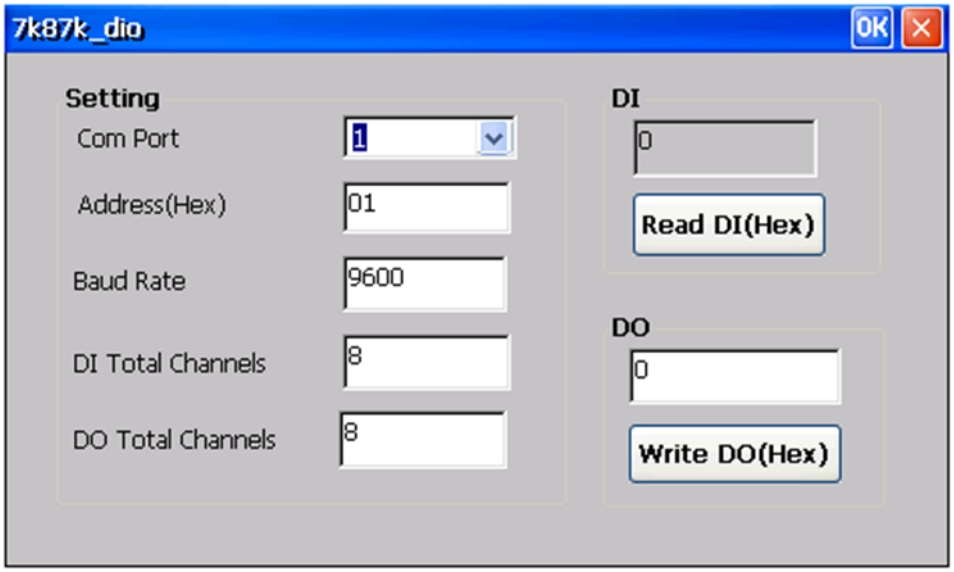
Example 3: The example extract from "7k87k_dio" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Remote\7k87k_dio\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/remote/7k87k_dio/

The example illustrates how to:

Read the DI and the DO values of the DIO module

pac_ReadDIO(HANDLE hPort, int PAC_REMOTE_IO (iAddr) , int iDO_TotalCh, DWORD lDO_Value);

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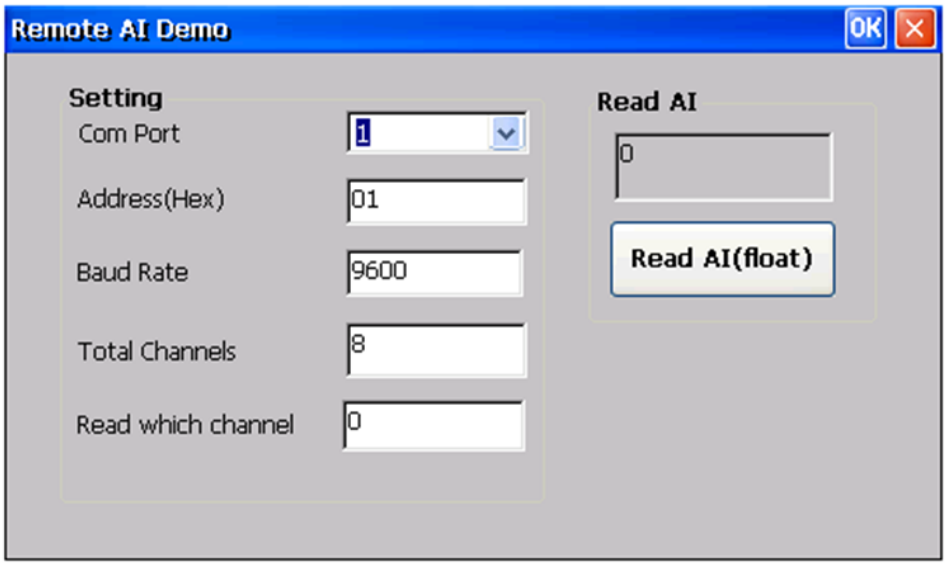
Example 4: The example extract from "7k87k_ai" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Remote\7k87k_ai\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/remote/7k87k_ai/

The example illustrates how to:

Read the engineering-mode AI value of the AI module

pac_ReadAI(hPort, PAC_REMOTE_IO (iAddr) ,iChannel,iAI_TotalCh, &fValue);

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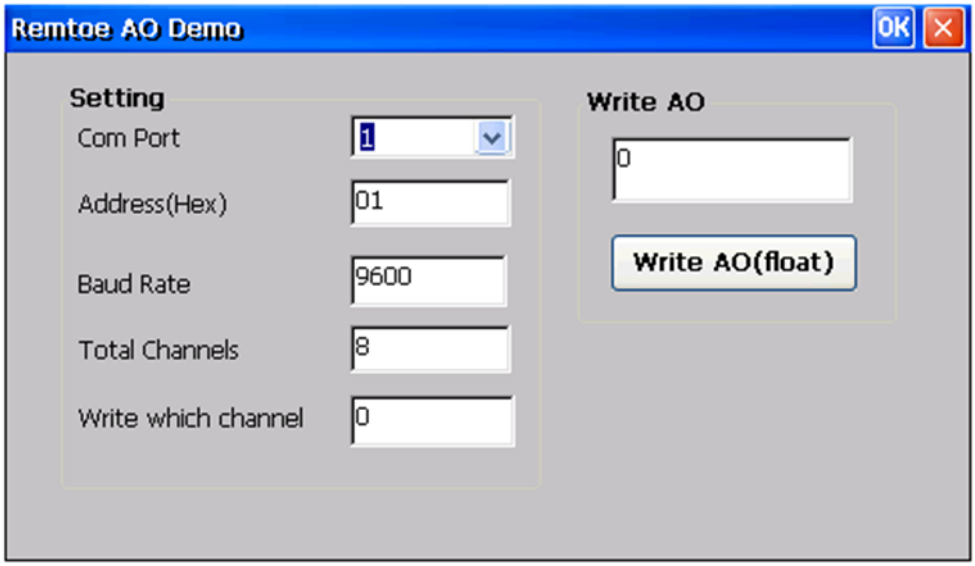
Example 5: The example extract from "7k87k_ao" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\PAC_IO\Remote\7k87k_ao\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/pac_io/remote/7k87k_ao/

The example illustrates how to:

Write the AO value to the AO modules

pac_WriteAO(hPort, PAC_REMOTE_IO (iAddr) , iChannel,iAO_TotalCh,fValue);

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7.2.9. Demo programs for error handling

Error handling operations enable you to receive and display error information for your application.

How to use error handling

Here is an example which extract from “Error” of ViewPAC demos

Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\Other\Error\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/other/error/

The example illustrates how to:

1. Return the last-error code value

pac_GetLastError();

2. Retrieve an error message string

pac_GetErrorMessage(DWORD dwMessageID, LPTSTR lpBuffer);

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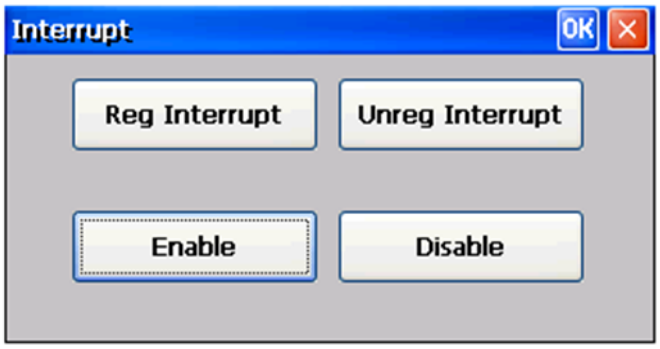
7.2.10. Demo programs for interrupt

The I/O modules that support interrupt function can be used for counting, timing, detecting external events, and sending and receiving data using the parallel bus.

If want to use the functions about interrupt, you should use the IO modules which support these operations.

For more information please reference website:
http://www.icpdas.com

How to use interrupt function



Here is an example which extract from “interrupt” of ViewPAC demos

Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\eVC\Standard\Backplane\Interrupt\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/evc/standard/backplane/interrupt/

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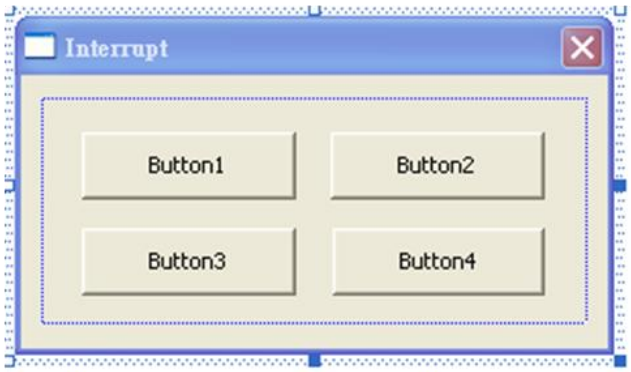
Steps to write interrupt application:

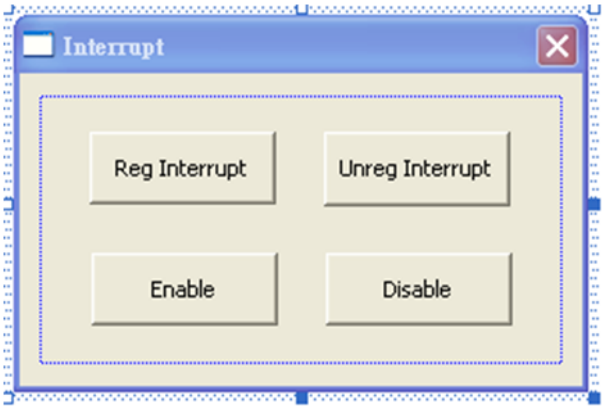
Step 1: Create a new project named "Interrupt", whose type is "WCE MFC AppWizard (exe)" and dialog base.

Step 2: Design the "Interrupt" dialog box as follows:



Step 3: Right-Click on each button object and select the "Properties" command to configure the caption as follows:

Object	Caption
button1	Reg Interrupt
button2	Unreg Interrupt
button3	Enable
button4	Disable



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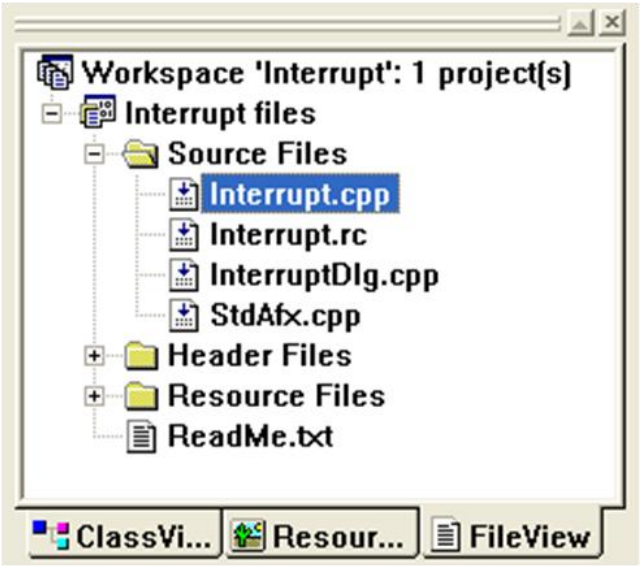
Step 4: On the "Workspace" window, select the "FileView" tab and expand the "Source Files" folder, and then double-click the "Interrupt.cpp" to open the editor window.



Step 5: Add the following code in the header area.

#include the ViewPACSDK.h

```
// InterruptDlg.cpp : implementation file
//

#include "stdafx.h"
#include "Interrupt.h"
#include "InterruptDlg.h"

#include "WinPacSDK.h"

#ifdef _DEBUG
#define new DEBUG_NEW
#undef THIS_FILE
static char THIS_FILE[] = __FILE__;
#endif
```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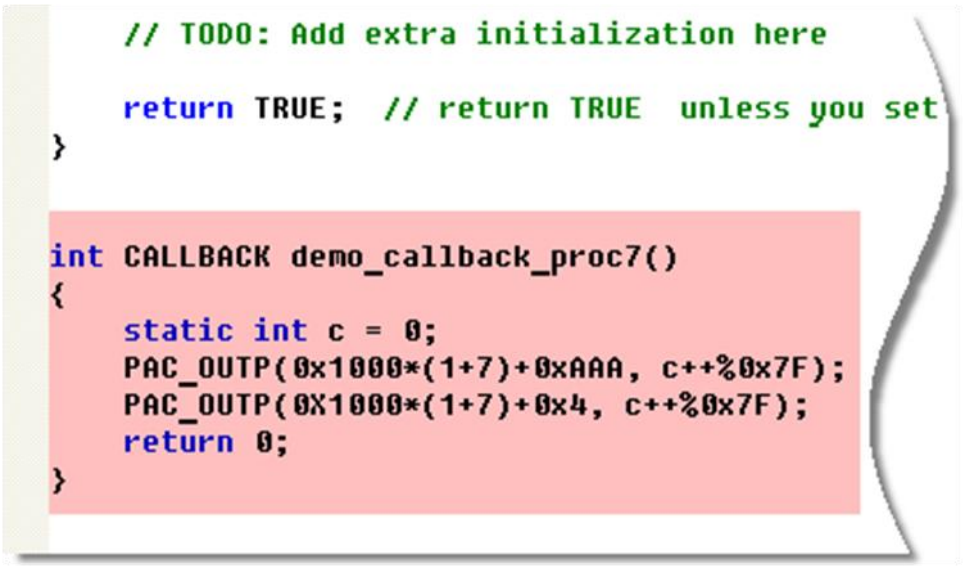
Step 6: Add the following code in the edit area below.

```
Int CALLBACK demo_callback_proc7()
{
        static int c = 0;
        PAC_OUTP ( 0x1000 * ( 1+7 ) + 0xAAA, c + + %0x7F );
        PAC_OUTP ( 0x1000 * ( 1+7 ) + 0x4, c + + %0x7F );
        return0;
}
```



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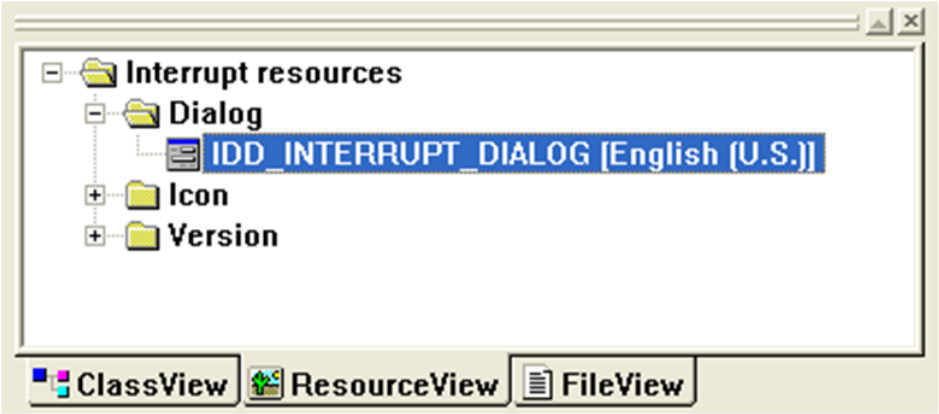
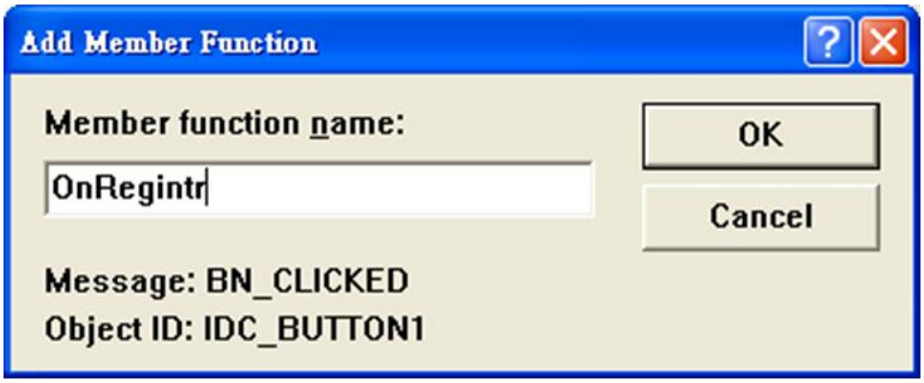
Step 7: On the "Workspace" window, select the "ResourceView" tab and expand the "Dialog" folder, and then double-click the "IDD_INTERRUPT_DIALOG [English [U.S.]]" to open the Interrupt dialog.



Step 8: Double-click the "Reg Interrupt" object to configure the Member function name "OnRegintr"



Step 9: Add the following code in the "OnUnregintr" function edit area

pac_RegisterSlotInterrupt(7, demo_callback_proc7);

```
void CInterruptDlg::OnRegintr()
{
    // TODO: Add your control notification handler code he
    pac_RegisterSlotInterrupt(7, demo_callback_proc7);
}
```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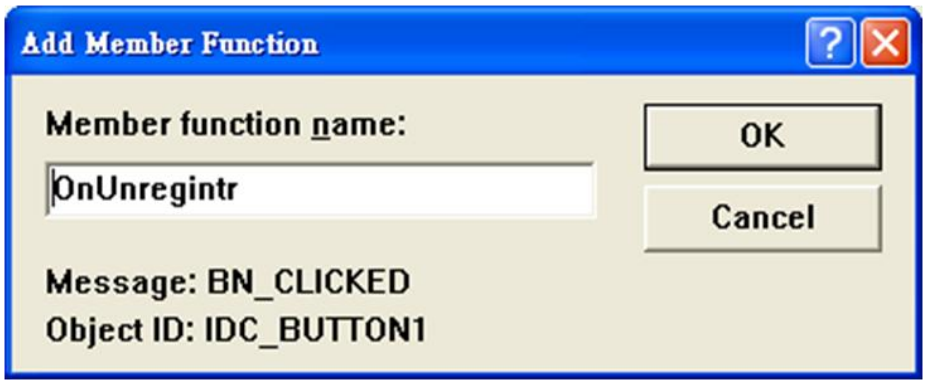
Step 10: Double-click the "Unreg Interrupt" object to configure the Member function name "OnUnregintr"



Step 11: Add the following code in the "OnUnregintr" function edit area

pac_UnregisterSlotInterrupt(7);

```
void CInterruptDlg::OnUnregintr()
{
    // TODO: Add your control notifica
    pac_UnregisterSlotInterrupt(7);
}
```

Step 12: Double-click the "Enable" object to configure the Member function name "OnEnable"

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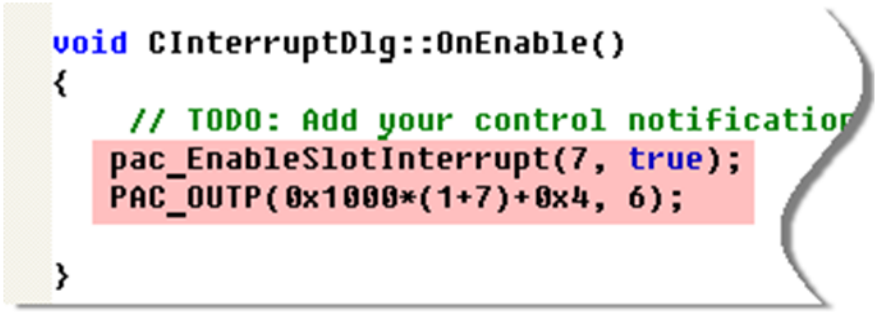
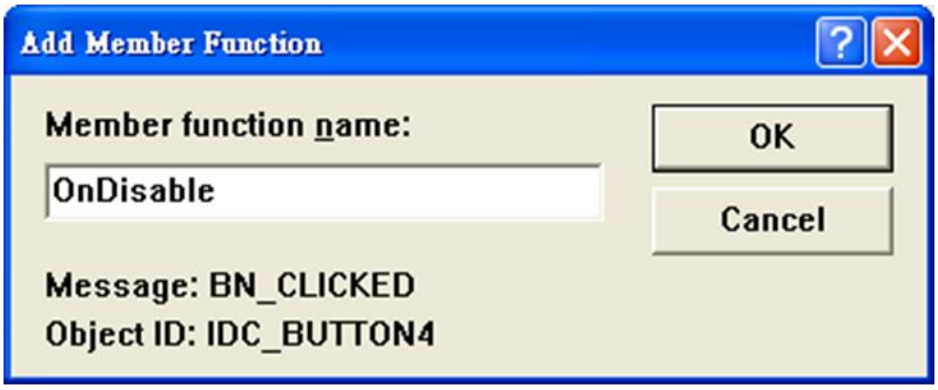
Step 13: Add the following code in the "OnEnable" function edit area

pac_EnableSlotInterrupt(7, true);

PAC_OUTP (0x 1000* (1 + 7) + 0x4, 6);



Step 14: Double-click the "Disable" object to configure the Member function name "OnDisable"



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Step 15: Add the following code in the "OnDisable" function edit area

pac_EnableSlotInterrupt (7, false);

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7.3. Demo programs with C#

Examples are good way to understand the ViewPAC SDK. This section includes the examples which extract from ViewPAC demo and cover most of the common usages of each ViewPAC API for using C#.

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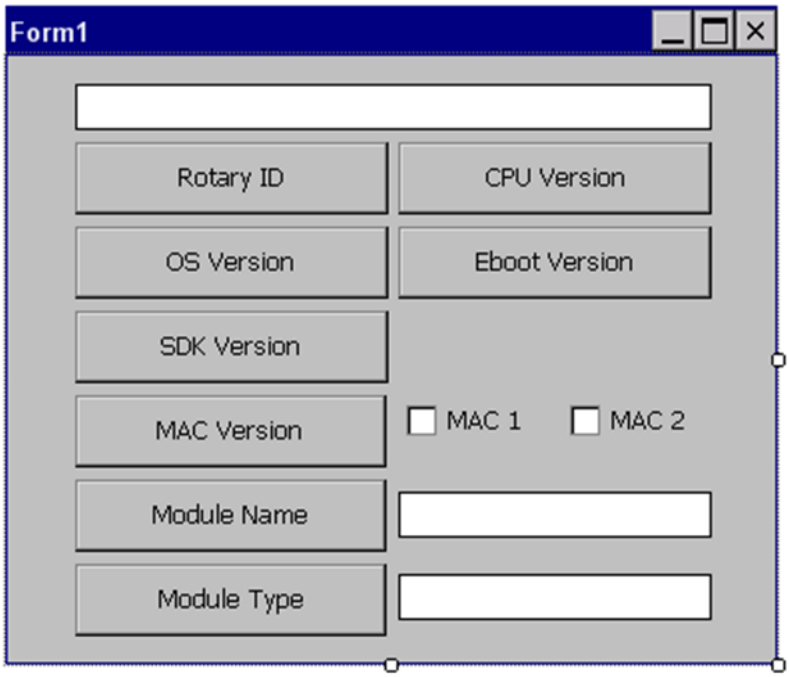
7.3.1. Demo programs for system information

System operations include basic operation, such as reboot and changing slot and Version display, including OS, Eboot, SDK, Serial Number, and Mac address.

How to use system information functions

Here is an example which extract from “systeminfo” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\System\Systeminfo\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/system/systeminfo/

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The example illustrates how to:

1. Read the CPU version

ViewPAC..pac_GetCPUVersion();

2. Read the rotary ID

ViewPAC.pac_GetRotaryID();

3. Read the OS version

ViewPAC..pac_GetOSVersion();

4. Read the Eboot version

ViewPAC..pac_GetEbootVersion();

5. Read the SDK version

ViewPAC..pac_GetSDKVersion();

6. Read the MAC address Version

ViewPAC..pac_GetMacAddress(byte LAN);

7. Read the module type

ViewPAC.pac_GetModuleName();

8. Read the module name

ViewPAC.pac_GetModuleType(byte slot, string strName);

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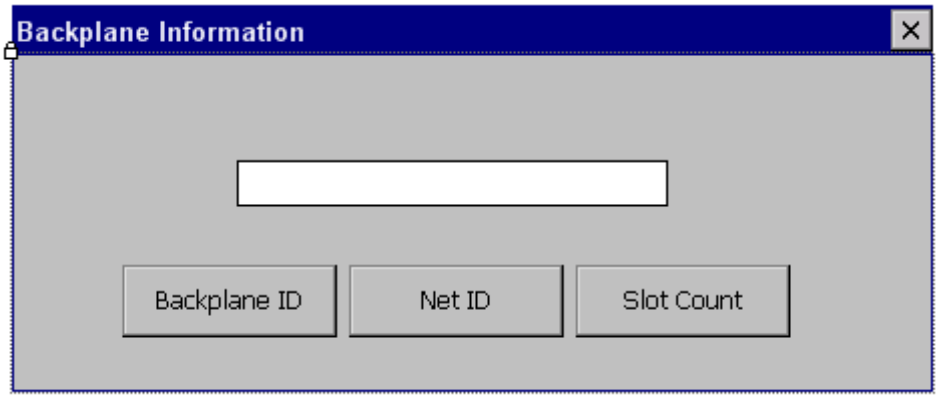
7.3.2. Demo programs for backplane access

Backplane operations include hot plug, interrupt and backplane information, such as NET ID and backplane version.

How to use backplane access functions

Here is an example which extract from “backplaneinfo” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\Backplane\Backplaneinfo\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/backplane/backplaneinfo/

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The example illustrates how to:

1. Read the backplane ID

ViewPAC.pac_GetBackplaneID();

2. Read the DIP Switch

ViewPAC.pac_GetDIPSwitch();

3. Read the slot count

ViewPAC.pac_GetOSVersion();

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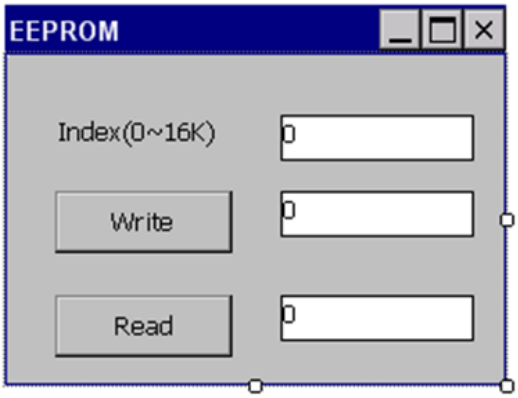
7.3.3. Demo programs for memory access

Memory operations include basic management operations, such as reading from and writing to the EEPROM or SRAM.

How to use memory access functions

Here are some examples

Example 1: The example extract from "eeprom" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\MemoryAccess\EEPROM\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/memoryaccess/eeprom/

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The example illustrates how to:

1. Enable the EEPROM

ViewPAC.pac_EnableEEPROM(bool);

2. Write the EEPROM

ViewPAC.pac_WriteMemory(unit address, byte [] lpBuffer, unit dwLength, int mem_type);

3. Read the EEPROM

ViewPAC.pac_ReadMemory(unit address, byte [] lpBuffer, unit dwLength, int mem_type);

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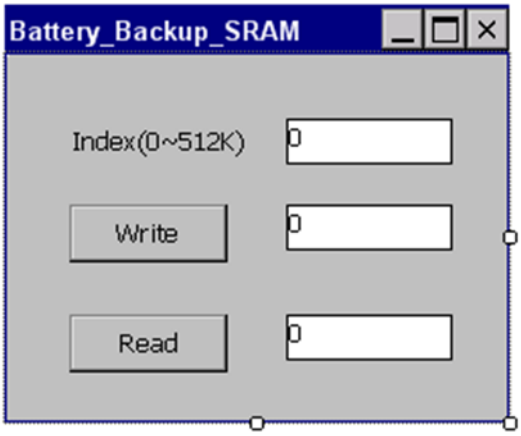
Example 2: The example extract from "battery_backup_sram" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\MemoryAccess\Battery_Backup_SRAM\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/memoryaccess/battery_backup_sram/

The example illustrates how to:

1. Write the EEPROM

ViewPAC.pac_WriteMemory(unit address, string lpBuffer, unit dwLength, int mem_type);

2. Read the EEPROM

ViewPAC.pac_ReadMemory(unit address, string lpBuffer, unit dwLength, int mem_type);

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7.3.4. Demo programs for watchdog

Watchdog operations include basic management operations, such as turning on and refreshing.

How to use watchdog functions

Here is an example which extract from “watchdog” of ViewPAC demos.

Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\WatchDog\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/watchdog/

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The example illustrates how to:

1. Enable the watchdog

ViewPAC.pac_EnableWatchDog(int wdt, unit value);

2. Refresh the watchdog

ViewPAC.pac_RefreshWatchDog(int wdt);

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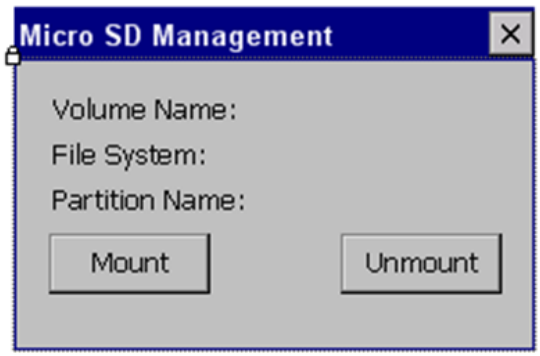
7.3.5. Demo programs for MicroSD management

MicroSD operations include basic management operations, such as mounting and unmounting.

How to use MicroSD management functions

Here is an example which extract from “microsd_management” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\MicroSD\MicroSD_Management\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/microsd/microsd_management/

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The example illustrates how to:

1. Check the Micro SD whether has been standby ready or not

ViewPAC.pac_SDExists();

2. Mount the Micro SD

ViewPAC.pac_SDMount(string szPartitionName);

3. Dismount the Micro SD

ViewPAC.pac_SDUnmount();

4. Check the Micro SD whether on-side or not

ViewPAC.pac_SDOnside();

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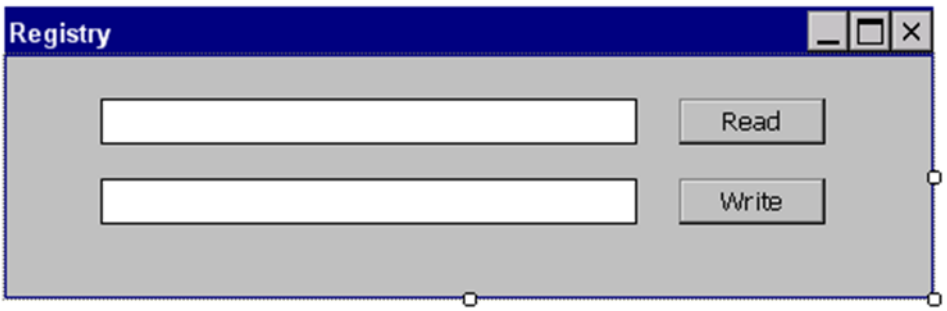
7.3.6. Demo programs for registry

Registry operations include basic management operations, such as reading from and writing to the registry.

How to use registry functions

Here is an example which extract from “Registry” of ViewPAC demos.



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\Registry\Registry\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/registry/registry/

The incorrect use of registry demo can cause serious problems that may require you to run Quick mode to reload them.

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The example illustrates how to:

1. Assign the specified registry key date which type is string

ViewPAC.pac_RegSetString(byte[ ] KeyName, string assignStr, unit dwLength);

2. Read the value of the specified registry key

ViewPAC.pac_RegGetDWORD(string KeyName, string lpData, unit dwLength);

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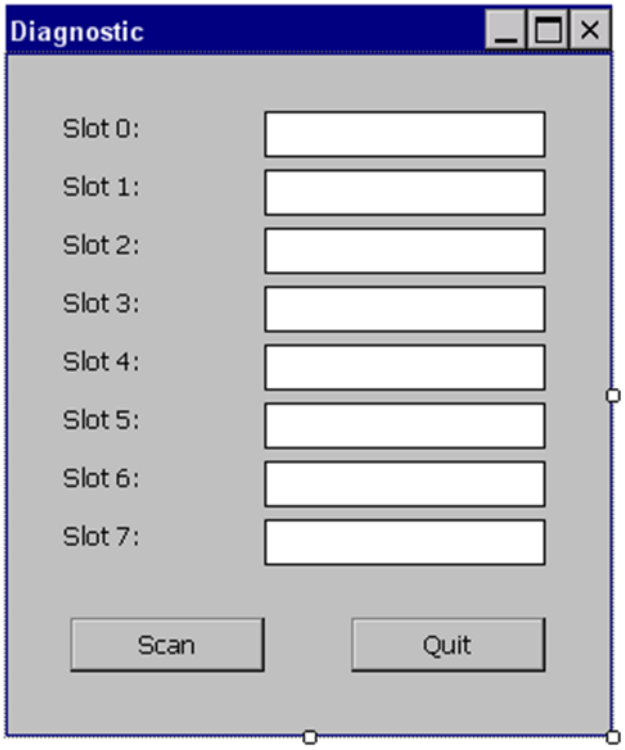
7.3.7. Demo programs for UART

Uart operations include basic management operations, such as opening, sending, receiving, and closing.

How to use UART functions

Here is an example which extract from “diag” of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Standard\UART\Diag\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/standard/uart/diag/

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The example illustrates how to:

1. Open the COM port and specifies the baud rate, parity bits and stop bits

ViewPAC.uart_Open("COM1:,9600,N8,1");

2. Close the COM port which have been opened

ViewPAC.uart_Close(hOpen);

3. Send commands through the COM port which have been opened

ViewPAC.uart_SendCmd(hOpen, ViewPAC.Misc.AnsiString("$00M"), buf);

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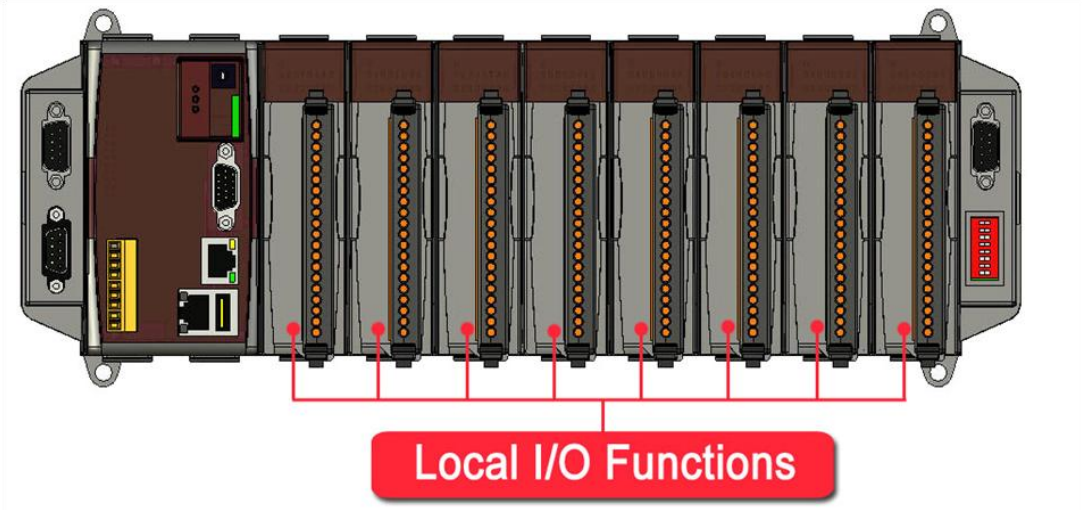
7.3.8. Demo programs for PAC_IO

PAC_IO API supports to operate IO modules not only in slot but in remote mode.

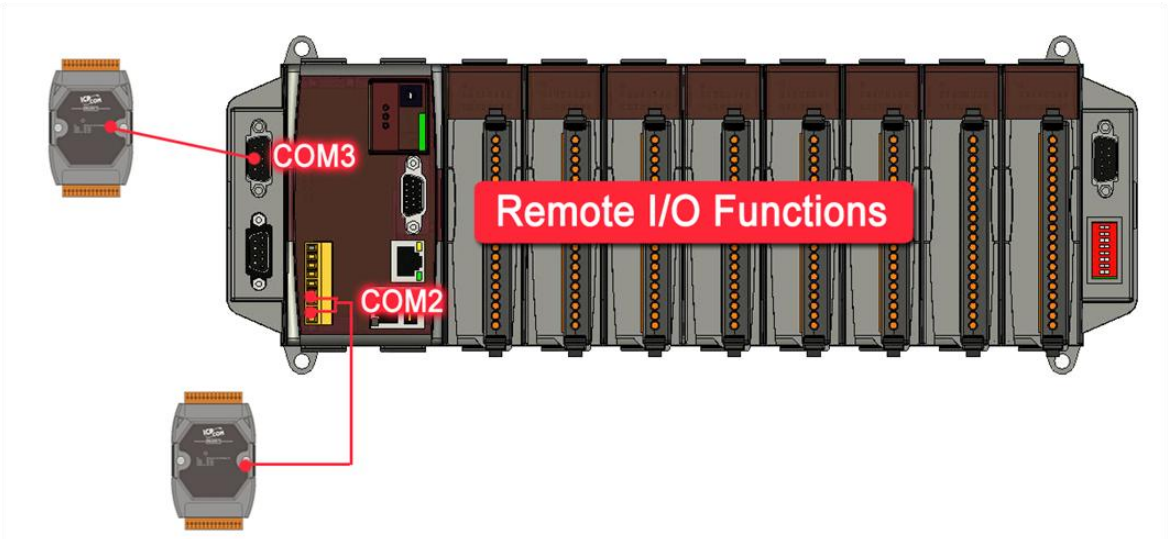
In the local mode, the slot range is from 0 to 7.

Local (IO in slot):



In the remote mode, the slot range is from 0 to 255.

Remote:



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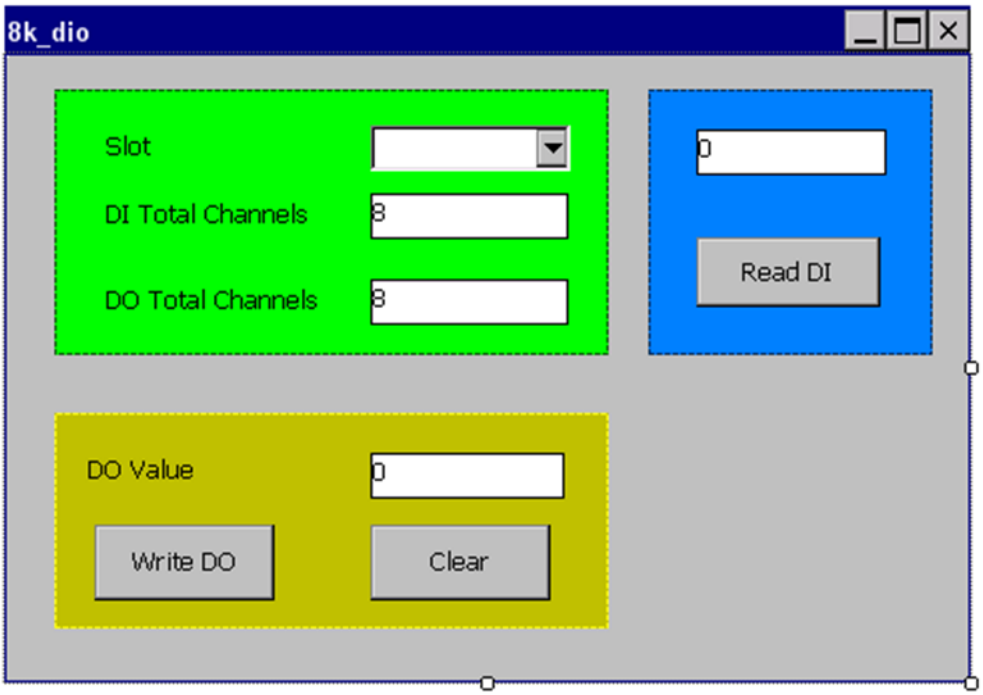
How to use Local I/O functions

Here are some examples

Example 1: The example extract from "8k_dio" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Local\8k_dio\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/local/8k_dio/

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The example illustrates how to:

1. Read the DI value of the DI module

ViewPAC.PAC_IO.pac_ReadDI(IntPtr hPort, int slot, int iDI_TotalCh, ref unit lDI_Value);

2. Write the DO value to the DO modules

ViewPAC.PAC_IO.pac_WriteDO(IntPtr hPort, int slot, int iDO_TotalCh, unit lDO_Value);

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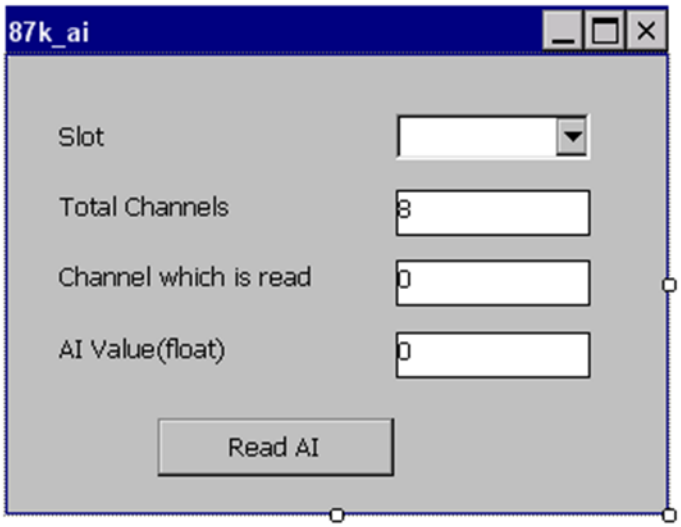
Example 2: The example extract from "87k_ai" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Local\87k_ai\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/local/87k_ai/

The example illustrates how to:

Read the engineering-mode AI value of the AI module

ViewPAC.PAC_IO.pac_ReadAI(hPort, iSlot,iChannel,iAI_TotalCh, ref fValue);

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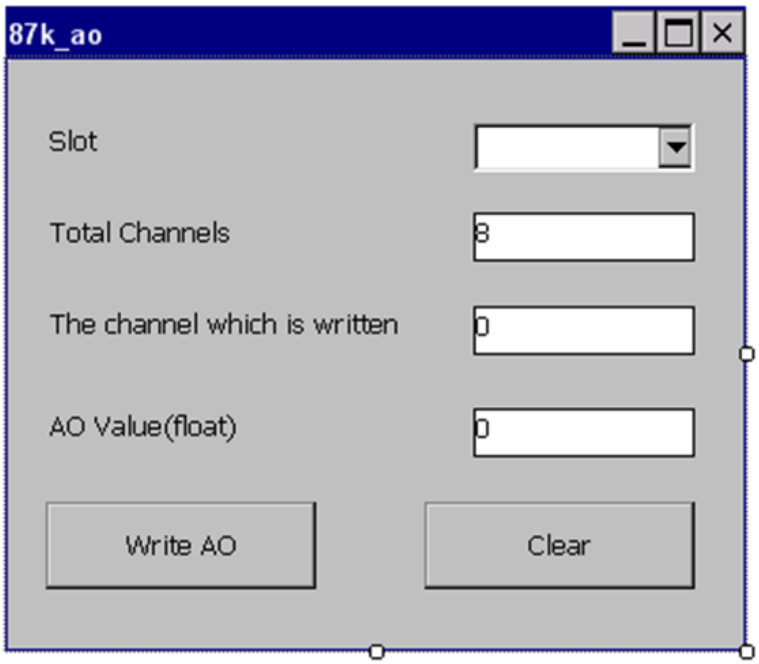
Example 3: The example extract from "87k_ao" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Local\87k_ao\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/local/87k_ao/

The example illustrates how to:

Write the AO value to the AO modules

ViewPAC.PAC_IO.pac_WriteAO(hPort, iSlot,iChannel,iAO_TotalCh,fValue);

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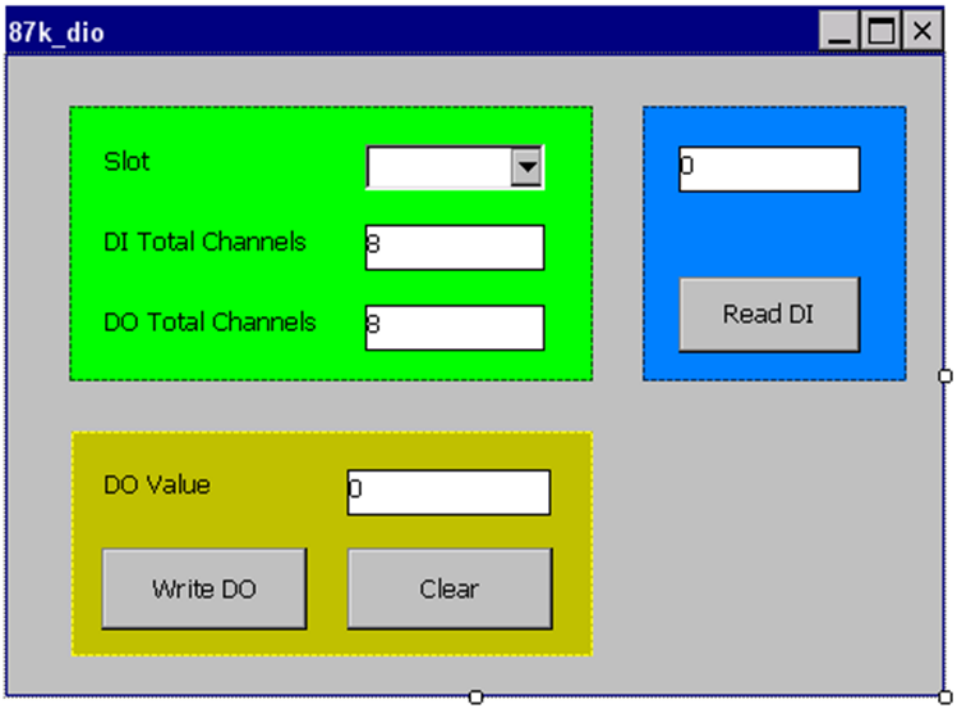
Example 4: The example extract from "87k_dio" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Local\87k_dio\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/local/87k_dio/

The example illustrates how to:

Read the DI and the DO values of the DIO module

ViewPAC. pac_ReadDIO(IntPtr hPort, int slot, int iDI_TotalCh, int iDO_TotalCh, ref unit lDI_Value, ref unit lDO_Value);

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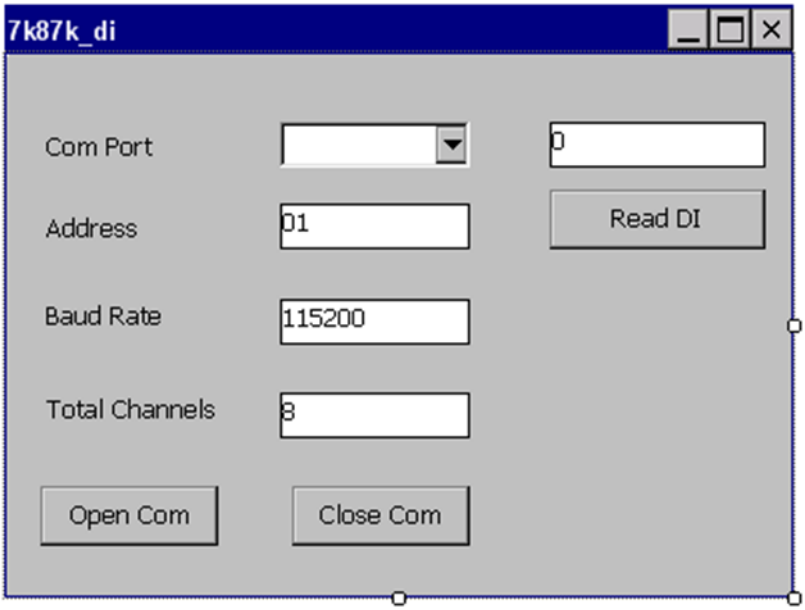
How to use remote I/O functions

Here are some examples

Example 1: The example extract from "7k87k_di" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Remote\7K87k_di\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/remote/7k87k_di/

The example illustrates how to:

Read the DI value of the DI module

ViewPAC.PAC_IO.pac_ReadDI(IntPtr hPort, int PAC_REMOTE_IO (iAddr) , int iDI_TotalCh, ref unit lDI_Value);

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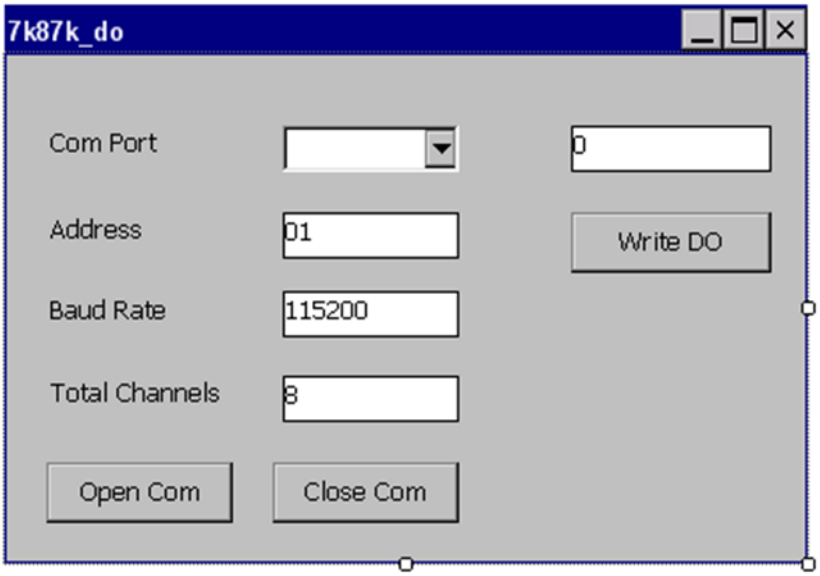
Example 2: The example extract from "7k87k_do" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Remote\7k87k_do\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/remote/7k87k_do/

The example illustrates how to:

Write the DO value to the DO modules

ViewPAC.PAC_IO.pac_WriteDO(IntPtr hPort, int PAC_REMOTE_IO (iAddr) , int iDO_TotalCh, unit lDO_Value);

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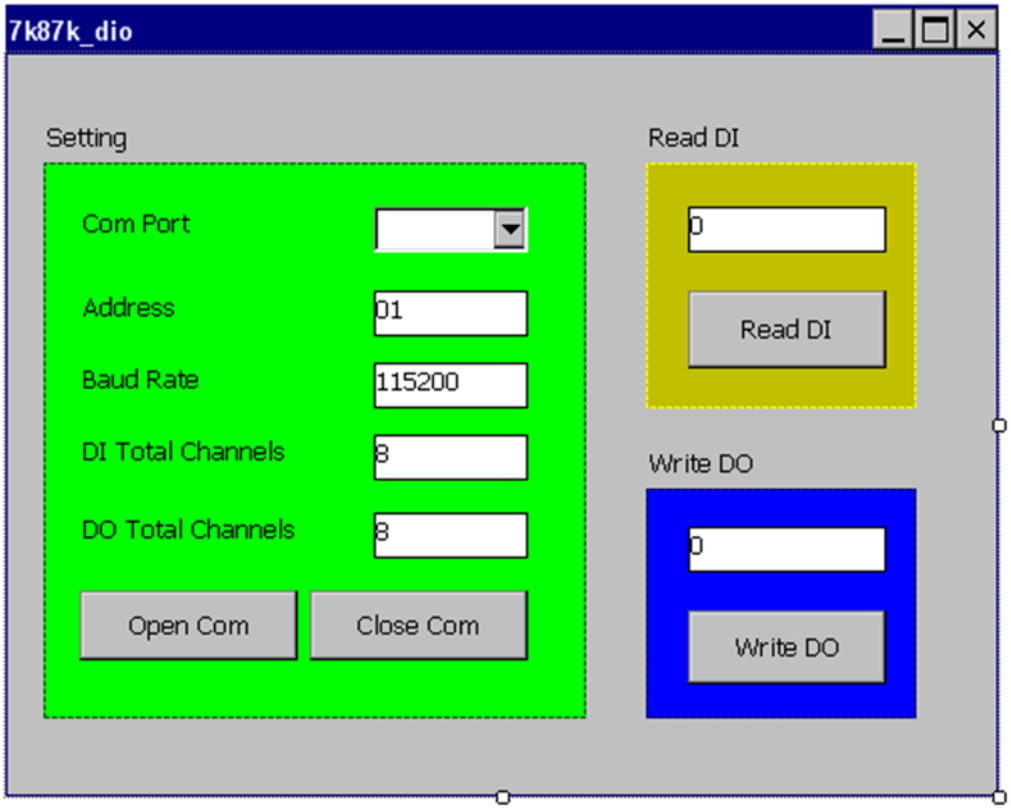
Example 3: The example extract from "7k87k_dio" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Remote\7k87k_dio\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/remote/7k87k_dio/

The example illustrates how to:

Read the DI and the DO values of the DIO module

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ViewPAC.PAC_IO.pac_ReadDIO(IntPtr hPort, int PAC_REMOTE_IO (iAddr) , int iDO_TotalCh, unit lDO_Value);

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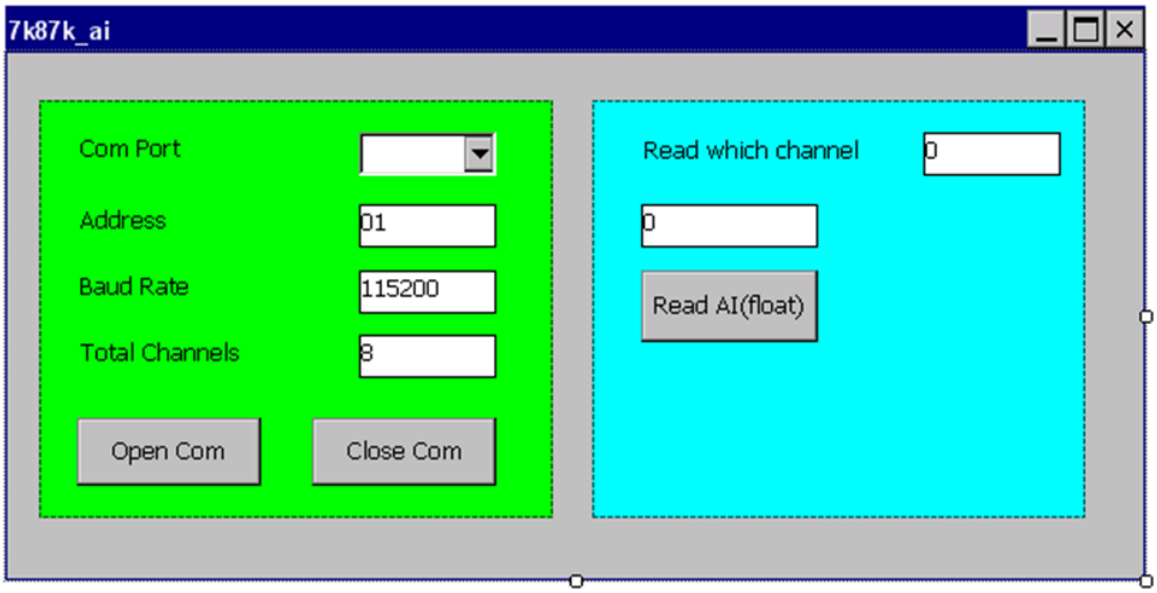
Example 4: The example extract from "7k87k_ai" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Remote\7k87k_ai\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/remote/7k87k_ai/

The example illustrates how to:

Read the engineering-mode AI value of the AI module

ViewPAC.PAC_IO.pac_ReadAI(hPort, PAC_REMOTE_IO (iAddr) ,iChannel,iAI_TotalCh, ref fValue);

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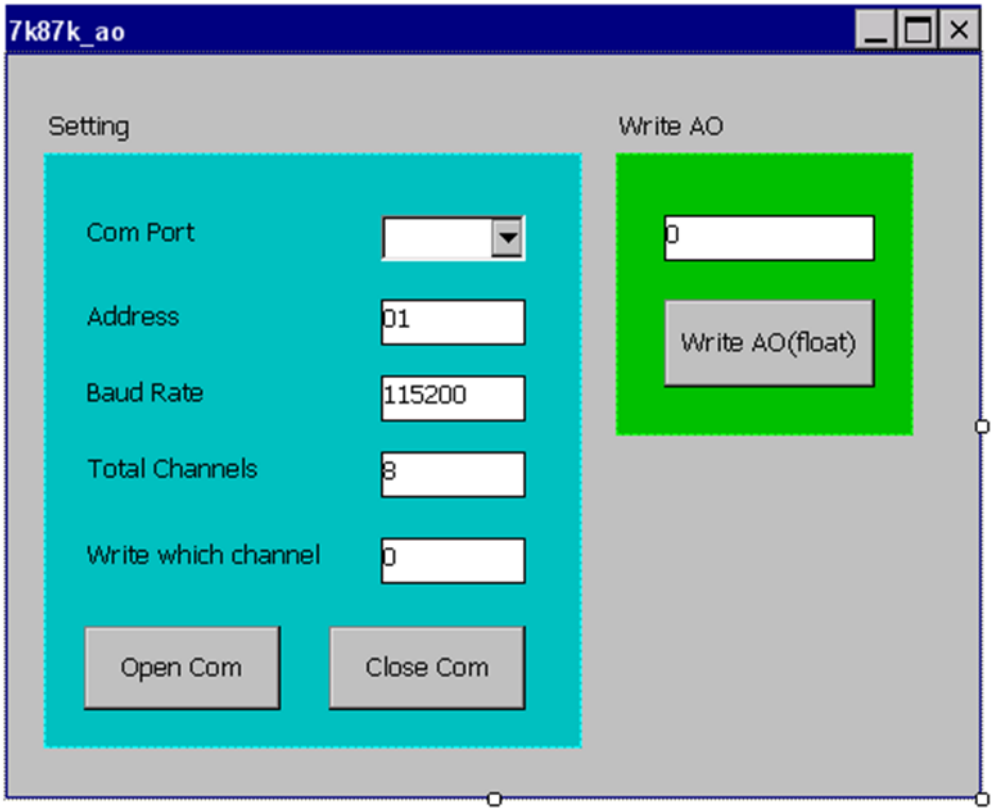
Example 5: The example extract from "7k87k_ao" of ViewPAC demos



Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\PAC_IO\Remote\7k87k_ao\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/c#/pac_io/remote/7k87k_ao/

The example illustrates how to:

Write the AO value to the AO modules

ViewPAC.PAC_IO.pac_WriteAO(hPort, PAC_REMOTE_IO (iAddr) , iChannel,iAO_TotalCh,fValue);

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7.3.9. Demo programs for error handling

Error handling operations enable you to receive and display error information for your application.

How to use error handling

Here is an example which extract from “Error” of ViewPAC demos

Download the complete demo:

CD:\Napdos\vp-2000_ce50\demo\ViewPAC\DotNET\C#\Other\Error\

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/demo/ViewPAC/dotnet/C#/other/error/

The example illustrates how to:

1. Return the last-error code value

pac_GetLastError();

2. Retrieve an error message string

pac_GetErrorMessage(unit dwMessageID, string lpBuffer);

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APPENDIX A. I-8K AND I-87K MODULES

There are 3 slot options to expand local I/O. And the I/O modules can be parallel bus type (high profile I-8K series) and serial bus type (high profile I-87K series).

The difference between them is

Item	I-8K Series	I-87K Series
Microprocessor	No	Yes (8051)
Communication interface	Parallel bus	Serial bus
Communication speed	Fast	Slow
DI latched function	No	Yes
Counter input (for digital input module)	No	Yes (100 Hz)
Power on value	No	Yes
Safe value	No	Yes
Programmable slew-rate for AO module	No	Yes

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APPENDIX B. APPLICATION OF RS-485 NETWORK

The RS-485 length can be up to 4000 ft or 1.2 km over a single set of twisted–pair cables, if the RS-485 network is over 4000 ft or 1.2Km, the RS-485 repeater must be added to extend the RS-485 network.

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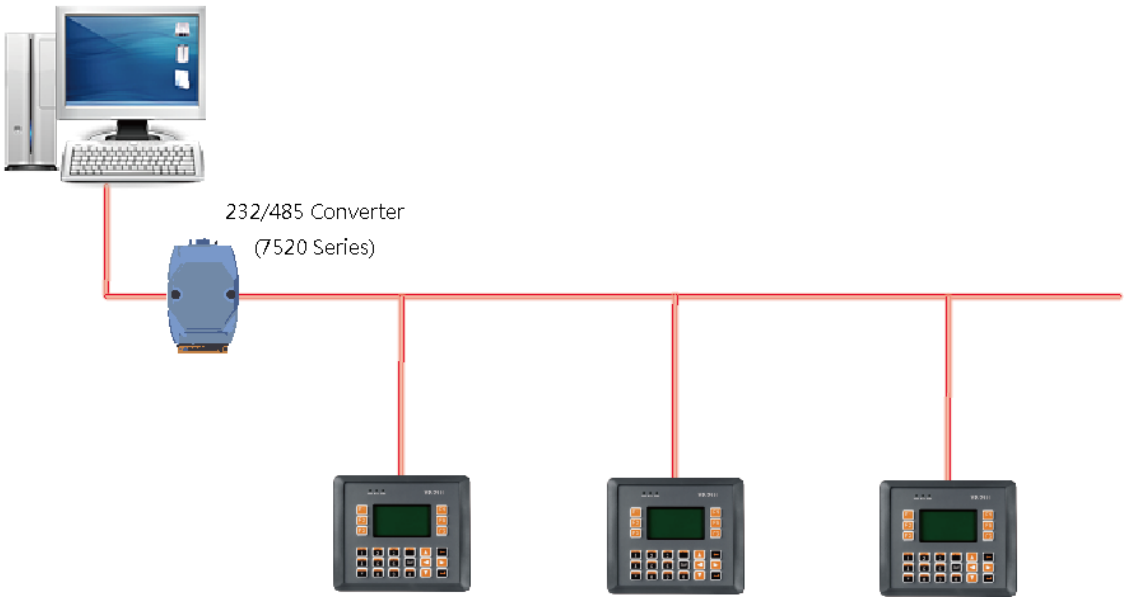
7.4. B.1. Basic RS-485 Network

The basic component of the RS-485 network consist of a Master Controller (or using a PC as a host controller), and some RS-485 devices.



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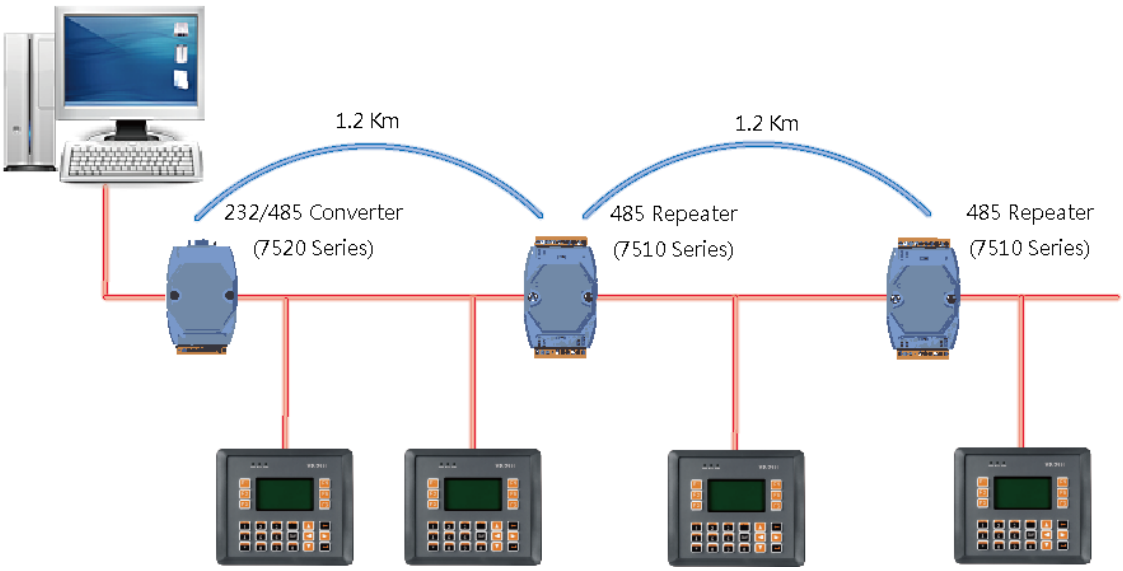
7.5. B.2. Daisy Chain RS-485 Network

All RS-485 devices are wired directly to the main network, If the network is up to 1.2 km, it will need a repeater (7510 series) to extend the network length.



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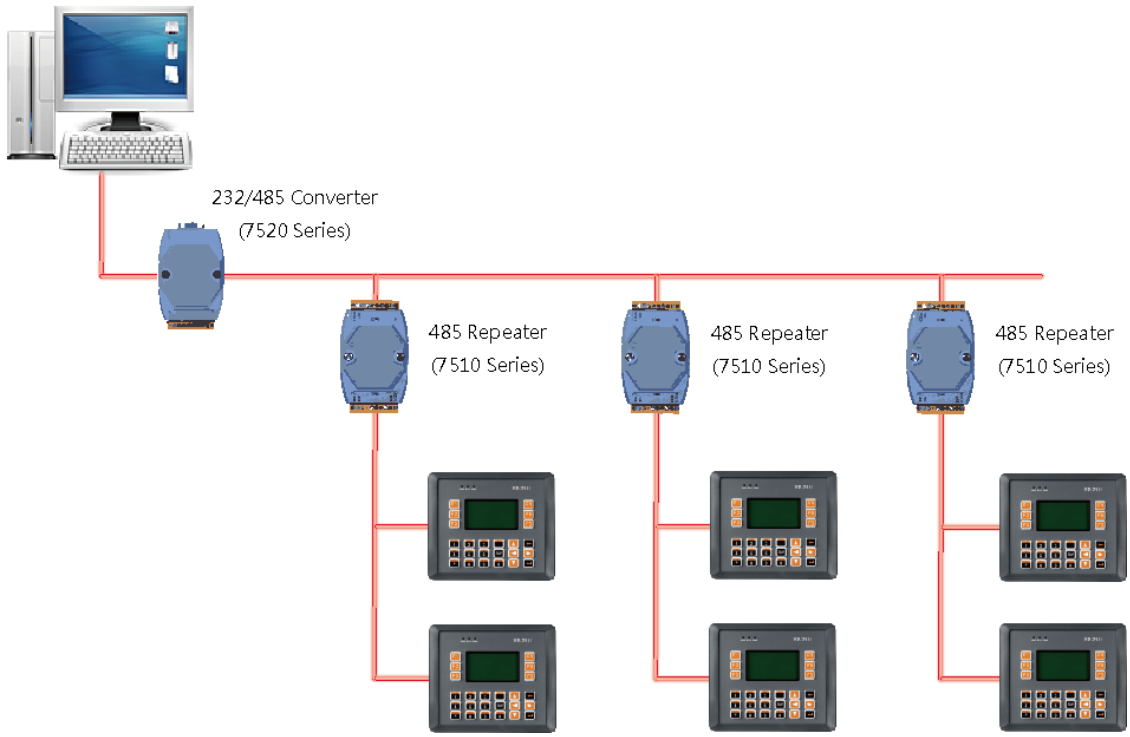
7.6. B.3. Star Type RS-485 Network

There are branches along the main network. In this case, it is better to have a repeater to isolate or filter the noise that is made by devices.



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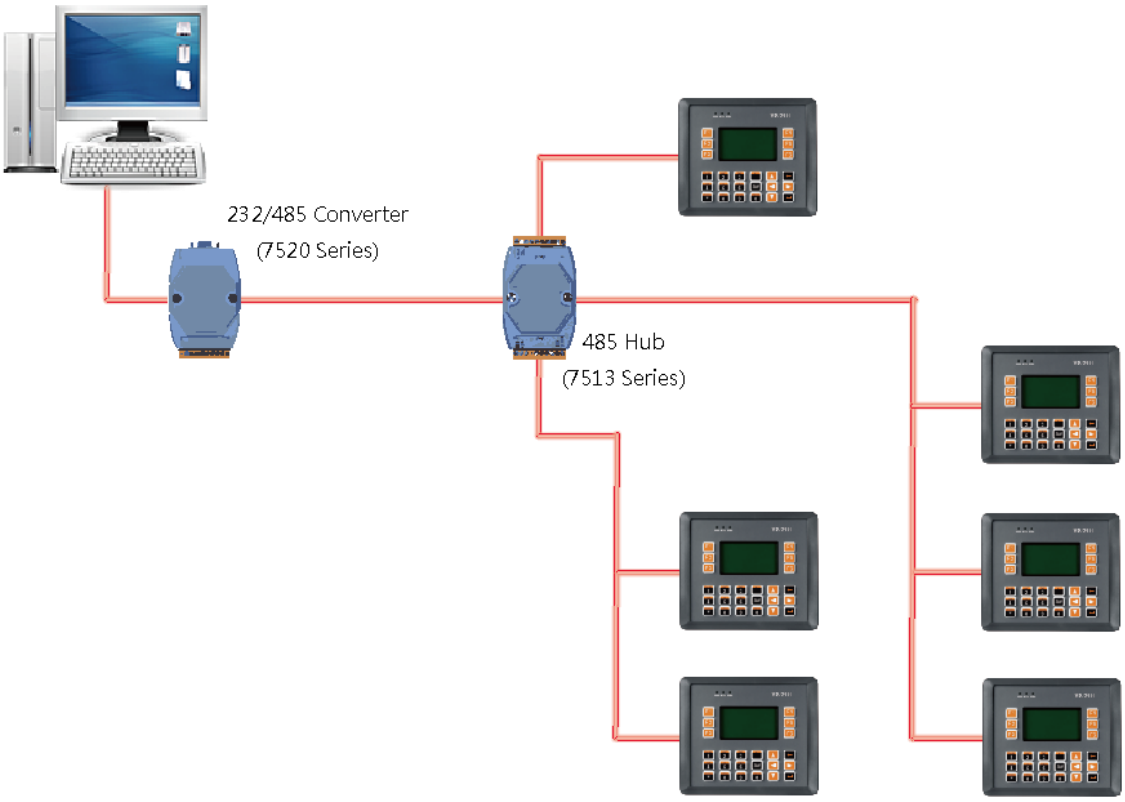
There is a better choice to use 7513 as a RS-485 hub on start type network.



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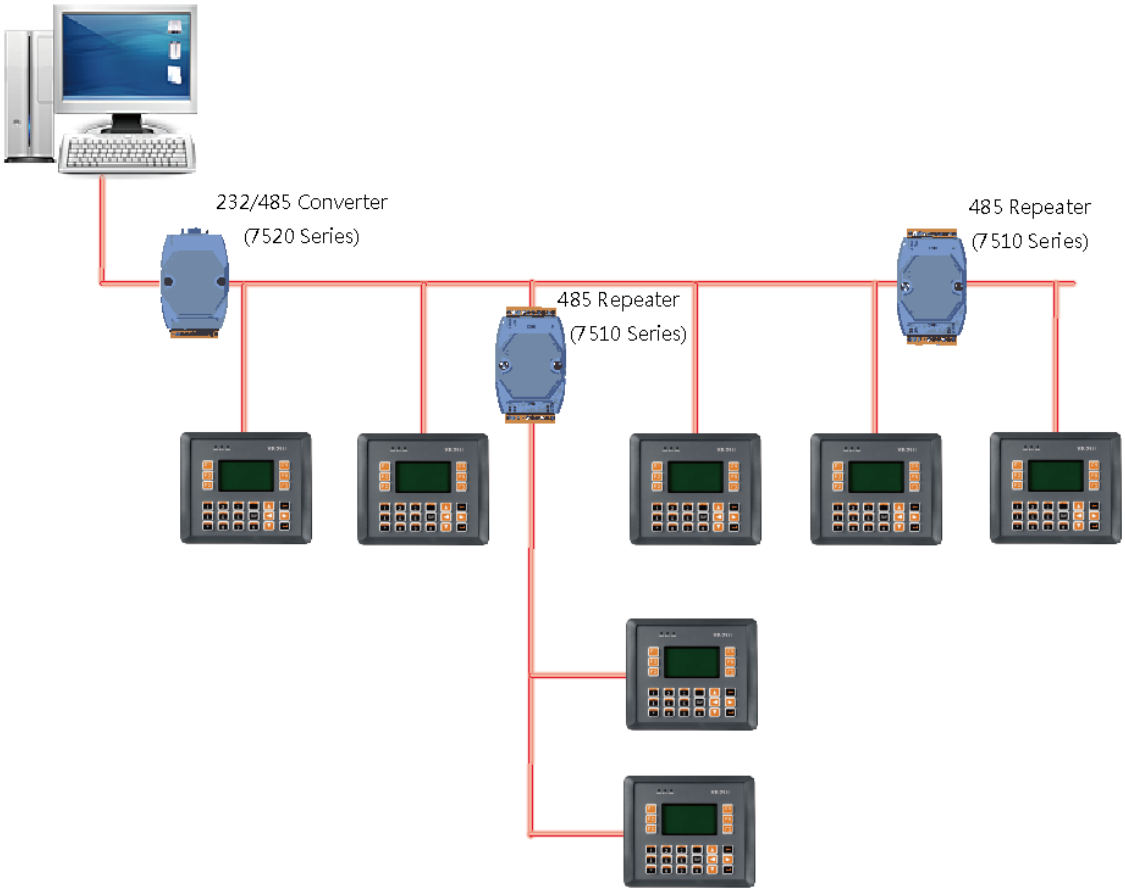
7.7. B.4. Random RS-485 Network

There are branches along the main wire. In this case, it is better to have a repeater to isolate or filter the noise that is made by devices.



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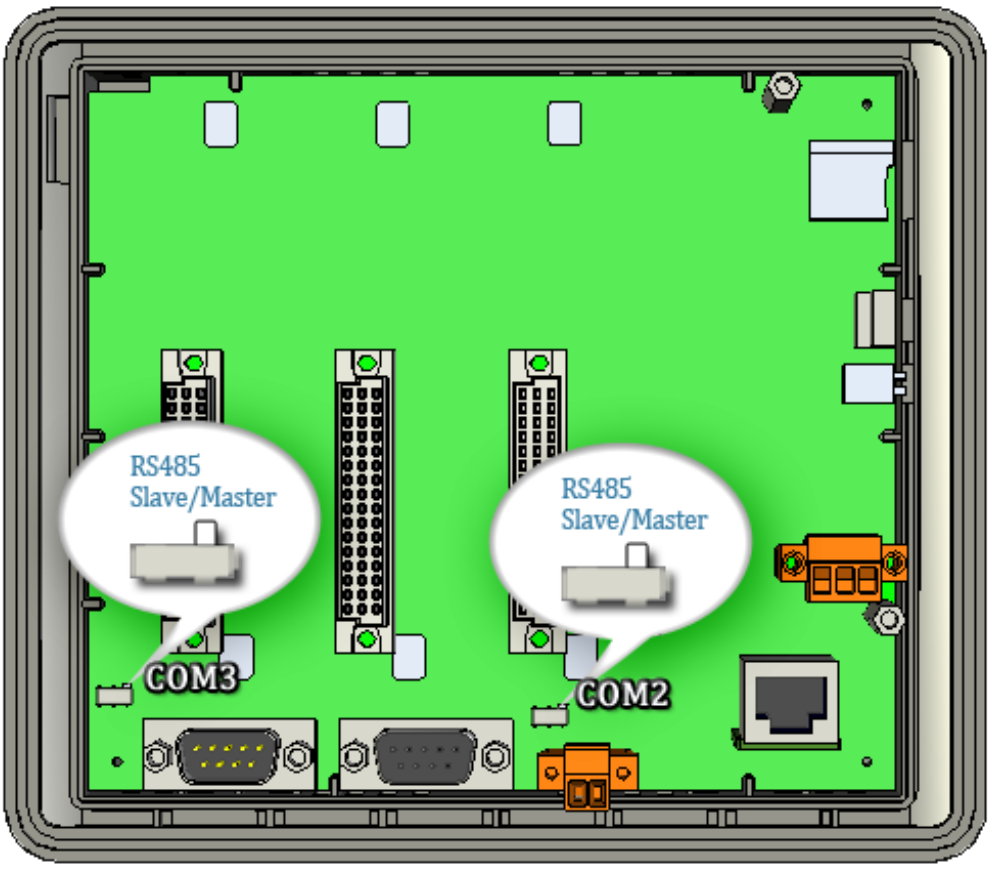
7.8. B.5. Master/Slaves Settings

There must exist one master to have a pull-high/pull-low resistor in the same network. In a master/slave applications, “Master” is the default configuration of ViewPAC.

B.5.1. ViewPAC as a Master (default):

When one of ViewPAC is set to the master mode, then all the other devices on the same network must be set to the slave mode.

Set an XP-8000 to the master mode by adjusting the jumpers on the power board of ViewPAC (the pull-high/pull-low resistors are adjusted to be enabled.) Refer to the following figure:



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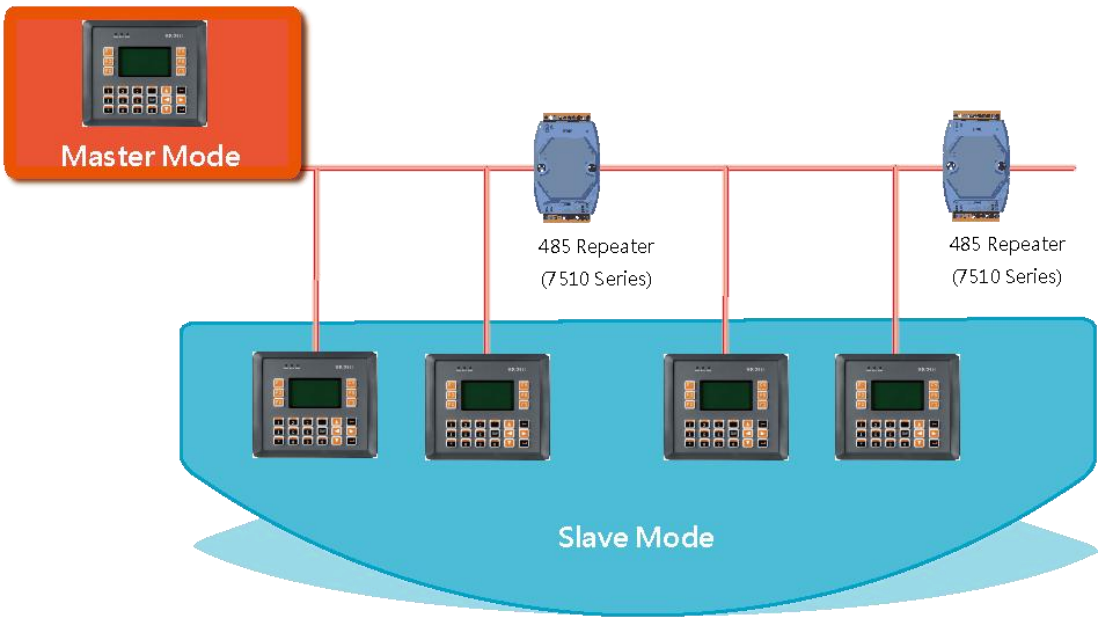

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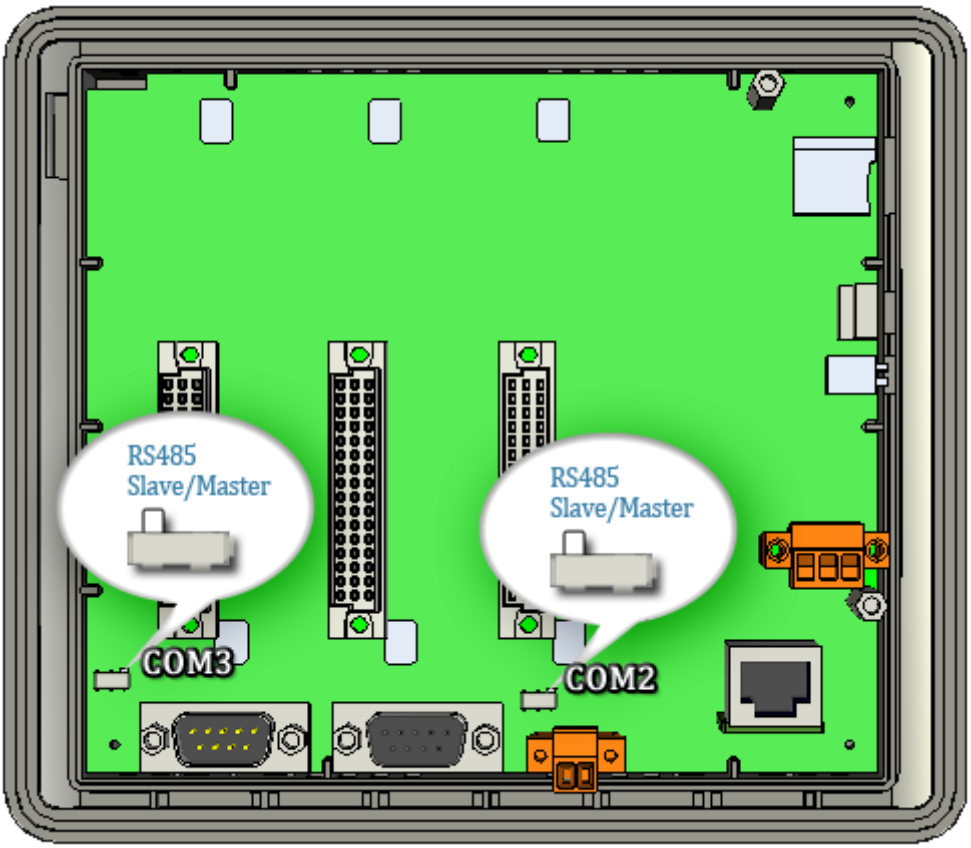
B.5.2. ViewPAC as a Slave:

For most of application, only one 7520 series module is used as RS-232/485 converter, and its pull-high/pull-low resistors are set to be enabled. Then the ViewPAC and all the other devices on this network must be in their slave mode (the pull-high/pull-low resistors must be disabled).

Please refer to the following figure to set the jumpers to the slave mode. The jumpers are located at the power board of ViewPAC



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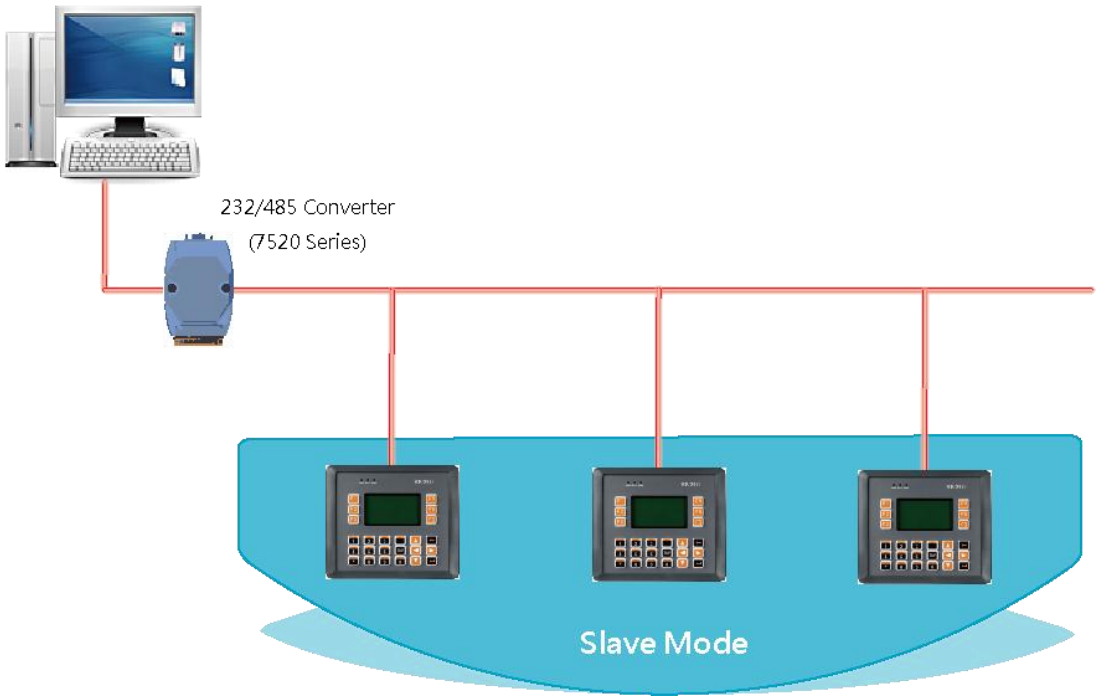
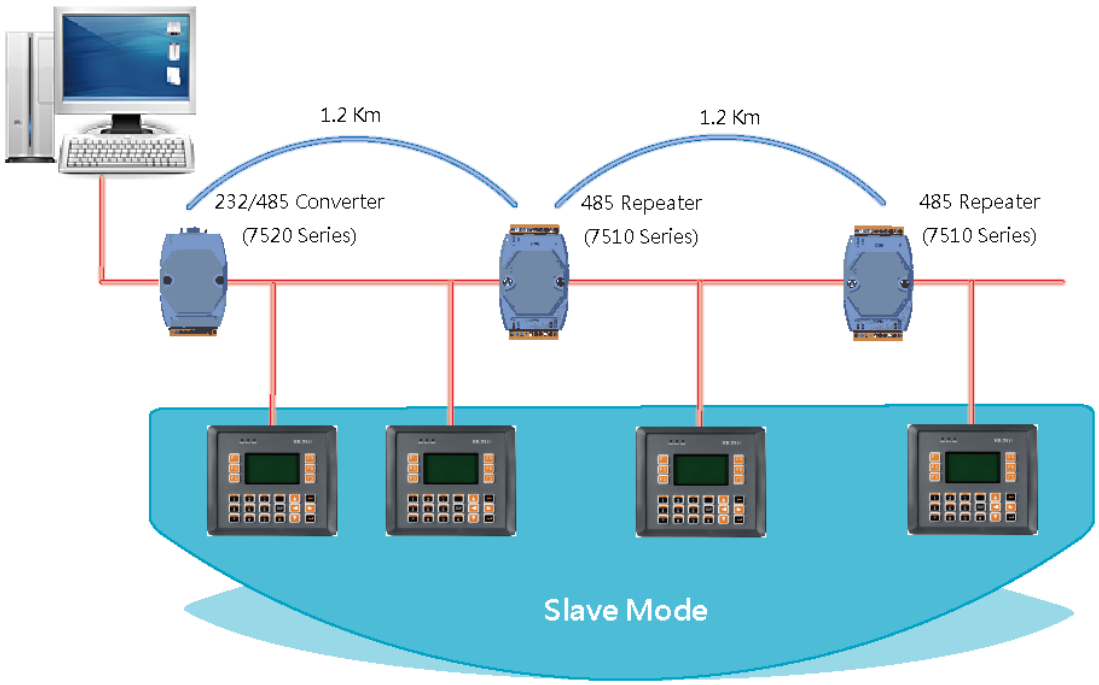


If there are repeaters on the RS-485 network, you can see that there are pull-high/pull-low resistors on both sides of the repeaters (i-7510)



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APPENDIX C. TIPS-HOW TO

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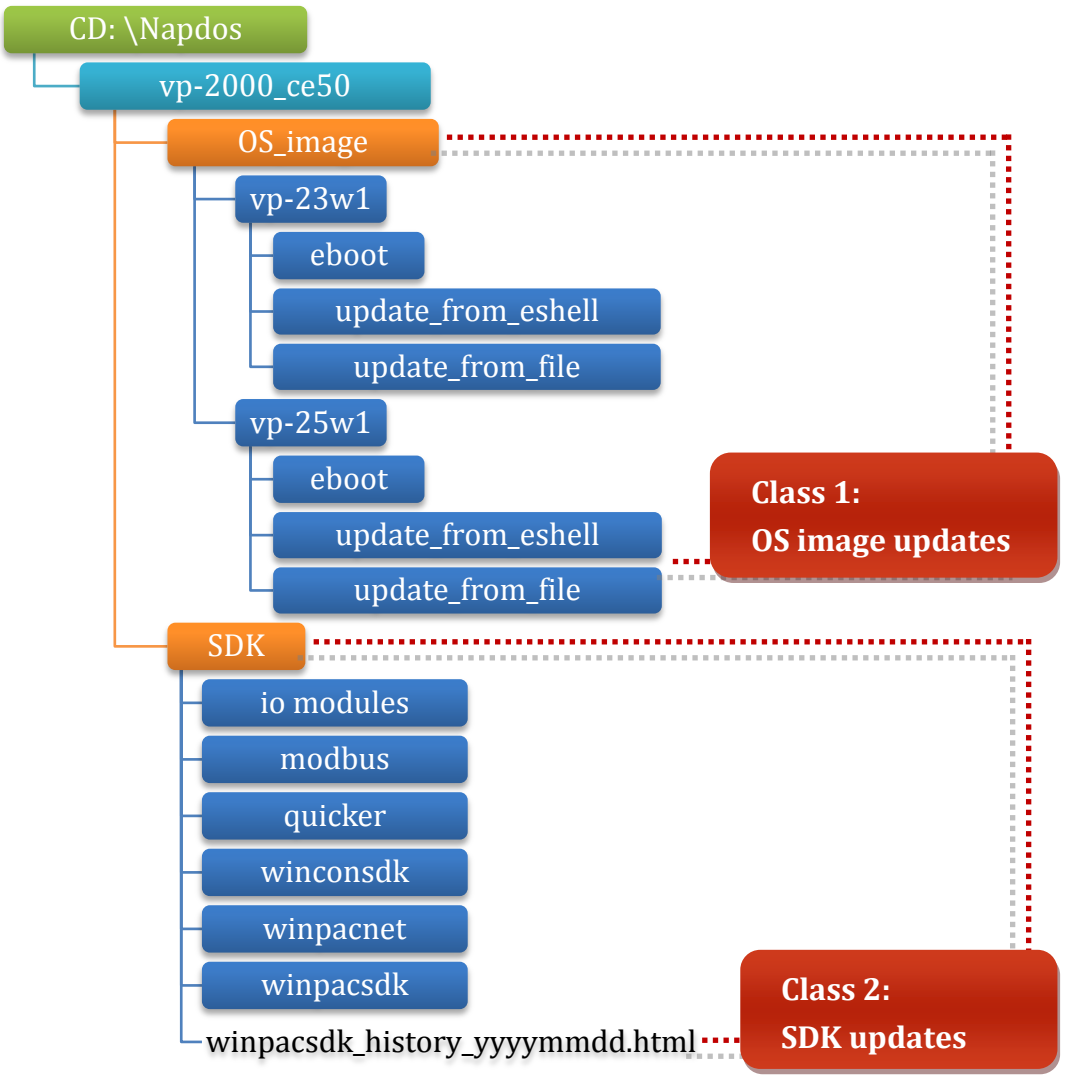
C.1. How to upgrade for ViewPAC

ICP DAS will continue to add additional features to ViewPAC SDK and OS in the future, so we advise you to periodically check the ICP DAS web site for the latest updates to ViewPAC SDK and OS.

ViewPAC upgrades that can be divided into the following two main classes:



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Class 1. OS image updates

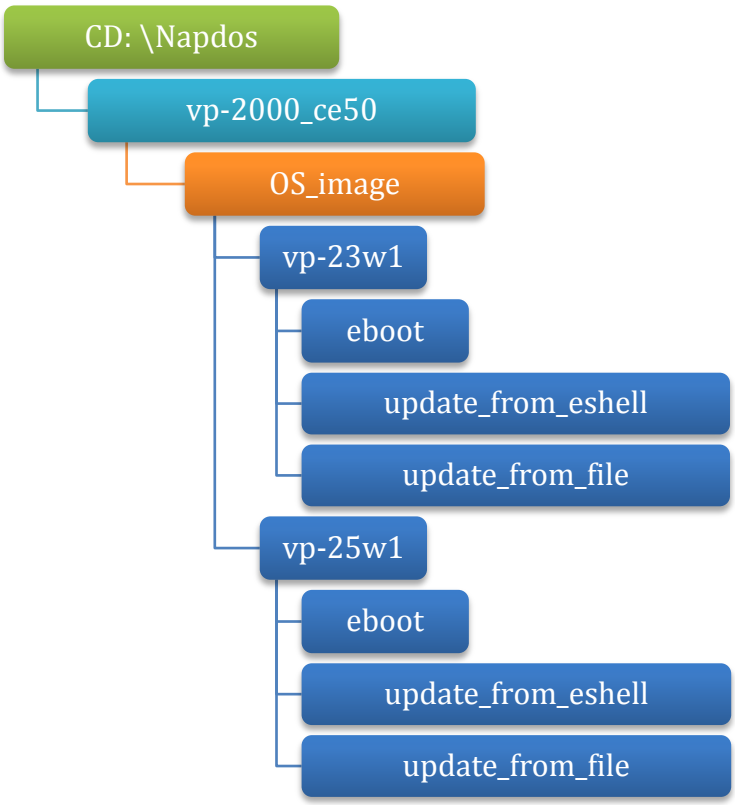
The updates files of OS image are located on:

VP-23W1:

CD:\Napdos\vp-2000_ce50\OS_image\vp-23w1\

VP-25W1:

CD:\Napdos\vp-2000_ce50\OS_image\vp-25w1\



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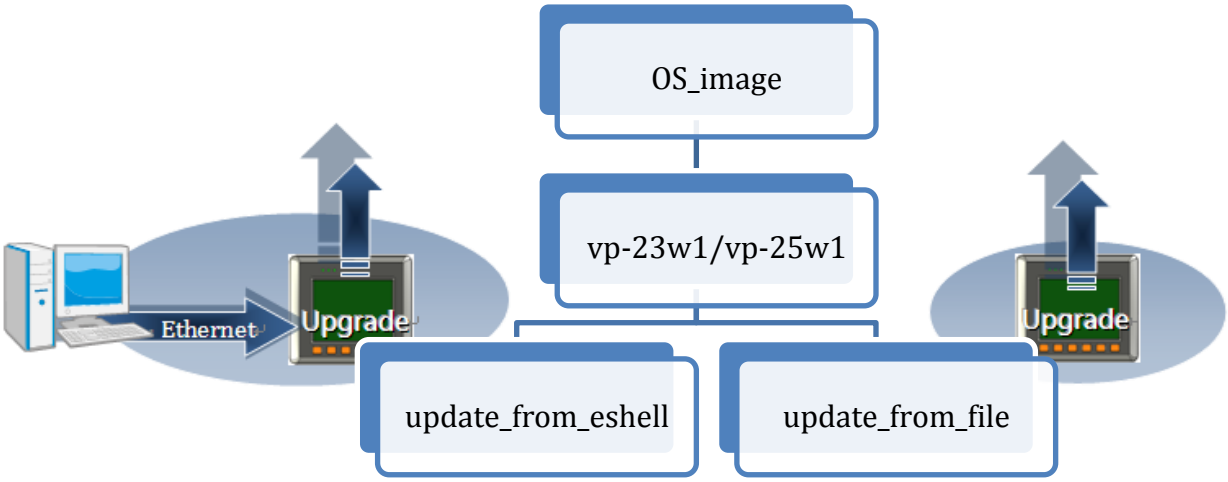
There are two different ways of ViewPAC OS image updates:

i. Update from file

(We recommend that you use this method for quick and easy to update ViewPAC OS image)

ii. Update from eshell

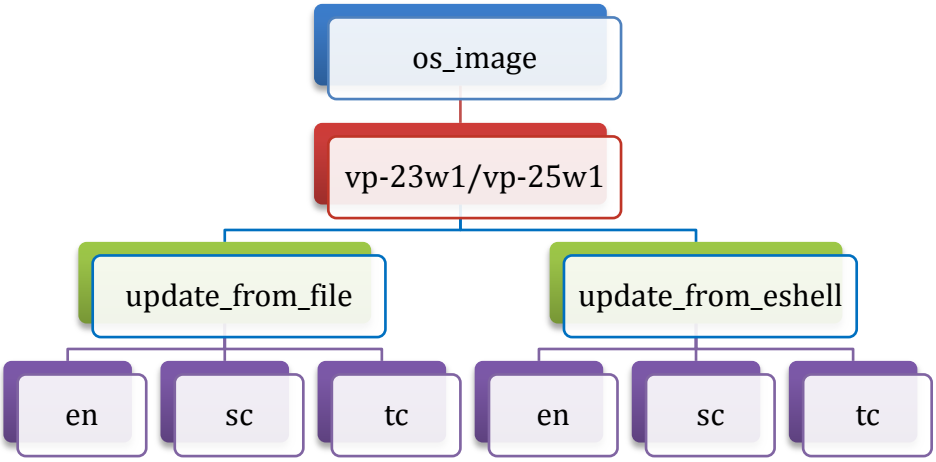


The ViewPAC OS supports multi-language:

i. en- English

ii. sc- Simplified Chinese

iii. tc- Traditional Chinese



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The following section provides procedures related to the update of ViewPAC OS:

C.1.1. How to update the Boot Loader and the ViewPAC OS image from files

C.1.2. How to update the ViewPAC OS image from eshell

Eshell can be used to update the ViewPAC OS image, but cannot be used to directly change OS language. The following section provides procedures related to change the OS language using eshell tool:

C.1.2.1. How to change the OS language

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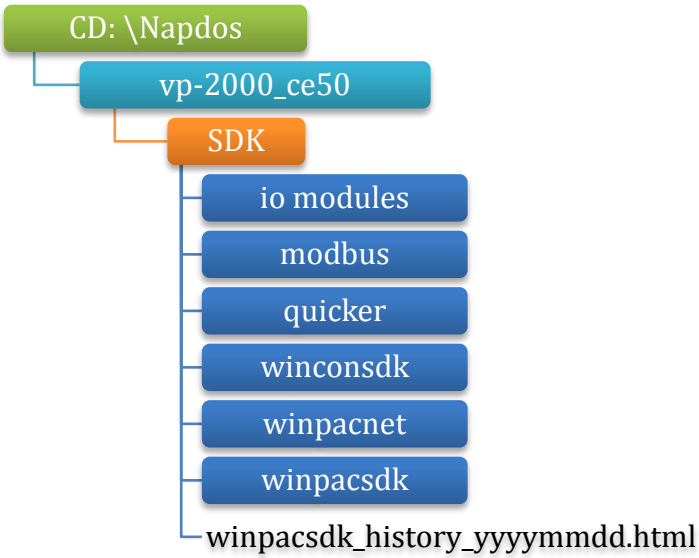
Class 2. SDK updates

The ViewPAC SDK is located in the following folder which contain various components related to the ViewPAC SDK:

SDK

This folder contains the latest version of the ViewPAC components related to the ViewPAC SDKs or APIs.



The following section provides information on SDK updates:

C.1.3. How to manually update the ViewPAC SDK

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C.1.1 How to update the Boot Loader and the ViewPAC OS image from files

There are two different ways of ViewPAC OS image update:

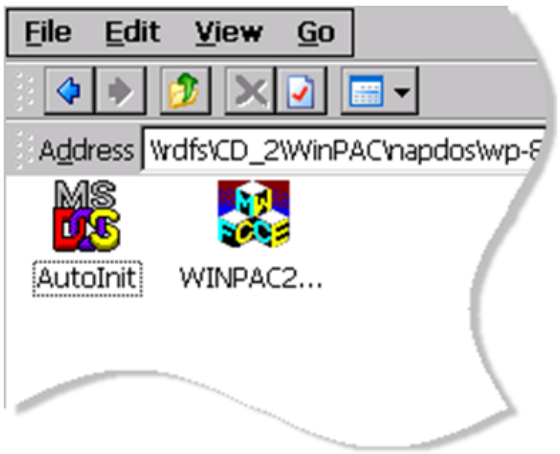
i. Updates from files (Please refer to this section)

We recommend that you use this method for quick and easy to update the ViewPAC OS image

ii. Updates from eshell tool (Please refer to section "E.1.2. How to update the ViewPAC OS image from eshell")

Step 1: Get the latest version of the execute file and the corresponding "autoinit.bat" file and run it on the ViewPAC controller side

Each folder contains an execute file and a corresponding "autoinit.bat" file.



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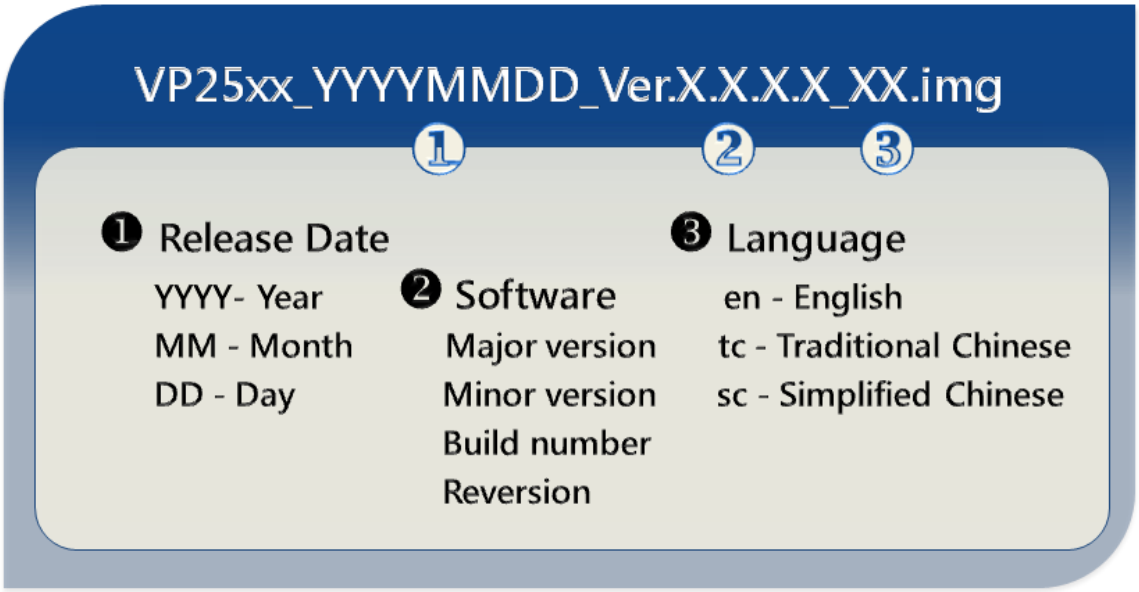
Download these file to the ViewPAC, you can:

On the ViewPAC controller side, upload files from ICP DAS FTP via an Ethernet connection.

On the Host PC, upload files to the ViewPAC via FTP

On the Host PC, copy the file to Micro SD, USB Disk or SRAM.



The latest version of the ViewPAC OS image file can be obtained from:

CD:\Napdos\vp-2000_ce50\OS_image\update_from_file\

http://www.icpdas.com/products/PAC/winpac/download/winpac_8000/download_os_images.htm

Step 2: On the "Warning !" dialog, click the "OK" button

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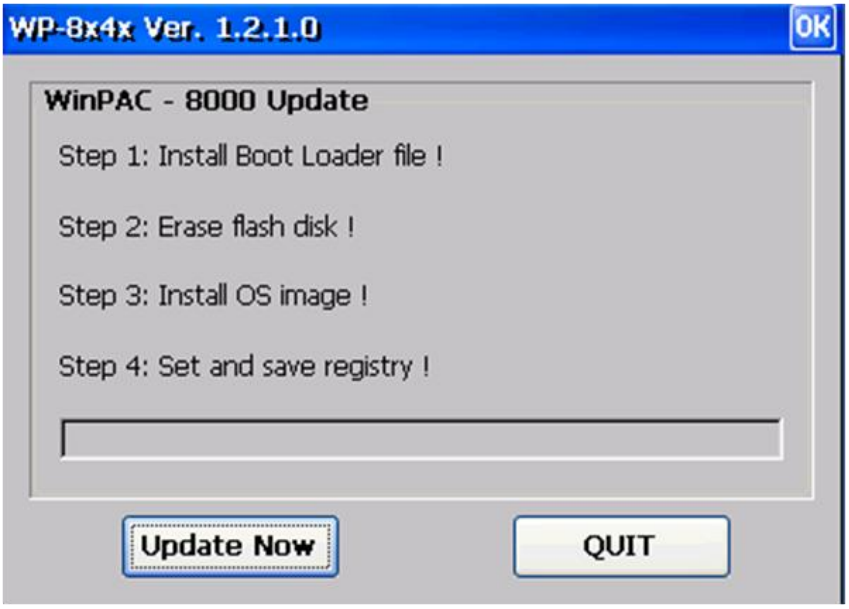
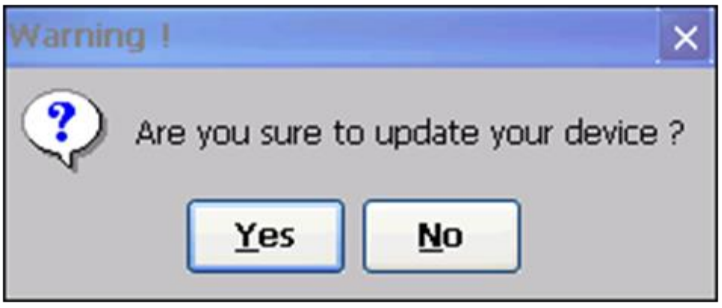
Step 3: On the main dialog, click the “Update Now” button


WP-8x4x Ver. 1.2.1.0
OK
WinPAC - 8000 Update
Step 1: Install Boot Loader file !
Step 2: Erase flash disk !
Step 3: Install OS image !
Step 4: Set and save registry !
Update Now
QUIT

Step 4: On the “Warning !” dialog, click the “Yes” button



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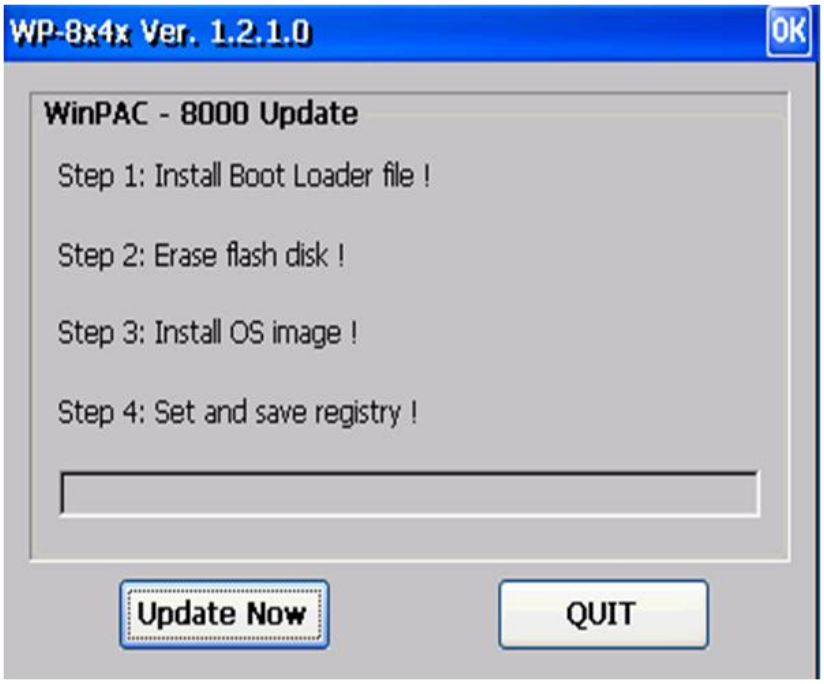
Step 5: On the main dialog, click the "Update Now" button to start installation


WP-8x4x Ver. 1.2.1.0
OK
WinPAC - 8000 Update
Step 1: Install Boot Loader file !
Step 2: Erase flash disk !
Step 3: Install OS image !
Step 4: Set and save registry !
Update Now
QUIT

Please never turn the ViewPAC off during OS load. Besides we recommend you turn off all other application before updating.

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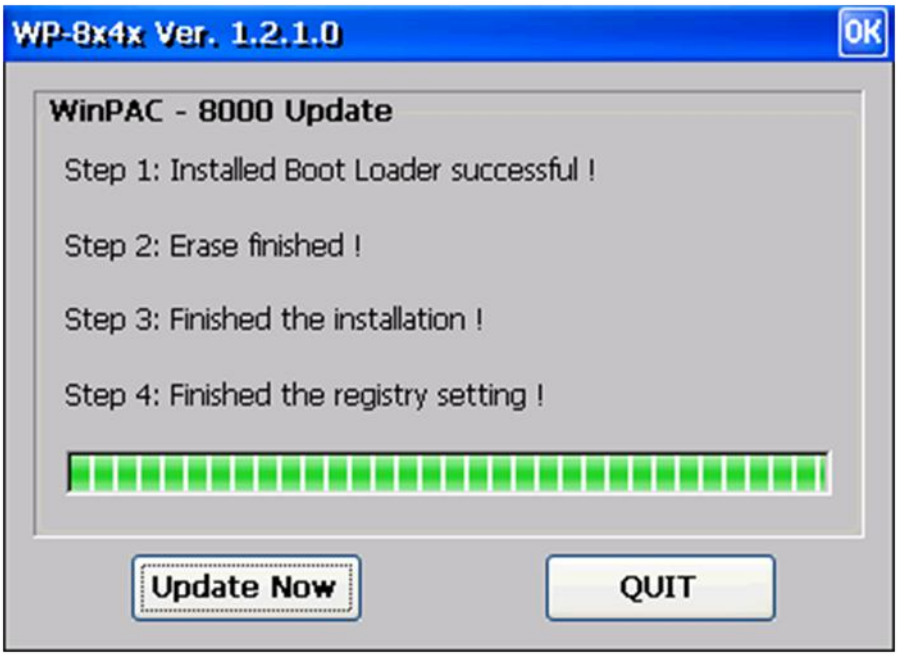
The installation will perform the following tasks:


WP-8x4x Ver. 1.2.1.0
OK
WinPAC - 8000 Update
Step 1: Installed Boot Loader successful !
Step 2: Erase finished !
Step 3: Finished the installation !
Step 4: Finished the registry setting !
Update Now
QUIT

i. Install Boot Loader file

Important warning:

Be careful, if the boot loader broken off in this step and cannot restart in Quick mode, you have to send it back to us.

---

ii. Erase flash disk

iii. Install OS image

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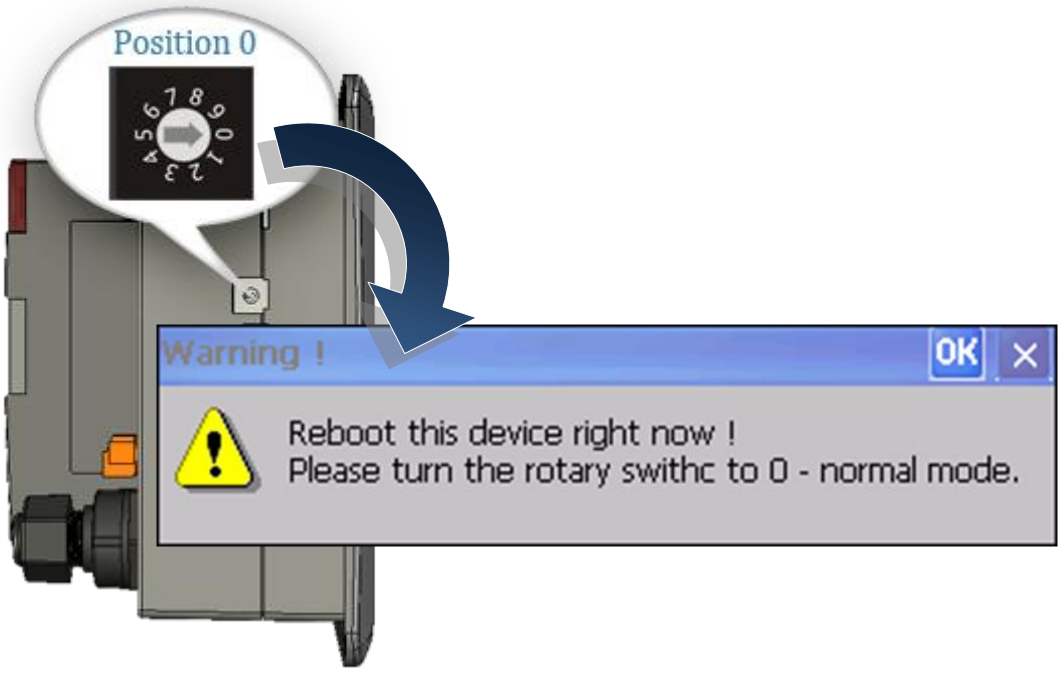
iv. Set registry settings to default

This step will reset the registry settings to default, all of your before settings will lost.

Step 6: After completing the above-mentioned tasks, the "Warning !" dialog will appear as follow, after clicking "OK" button to finish updating OS image, be sure the ViewPAC at normal mode.



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C.1.2.How to update the ViewPAC OS image from eshell

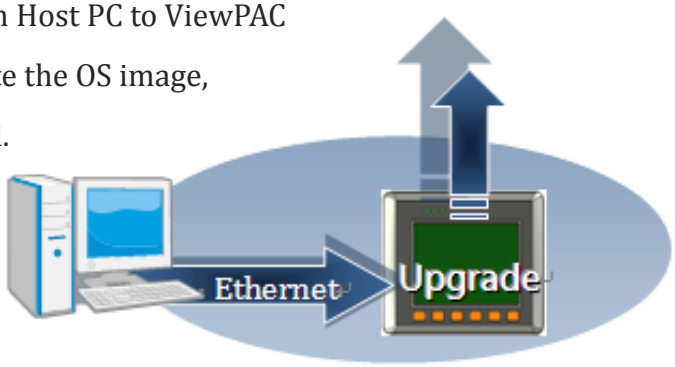
There are two different ways of ViewPAC OS image update:

i. Updates from files (Please refer to section "E.1.1. How to update the Boot Loader and the ViewPAC OS image from files")

We recommend that you use this method for quick and easy to update ViewPAC OS image

ii. Updates from eshell tool (Please refer to this section)

By default, the OS update from Host PC to ViewPAC via LAN 1. Therefore, to update the OS image, make sure LAN 1 is connected.



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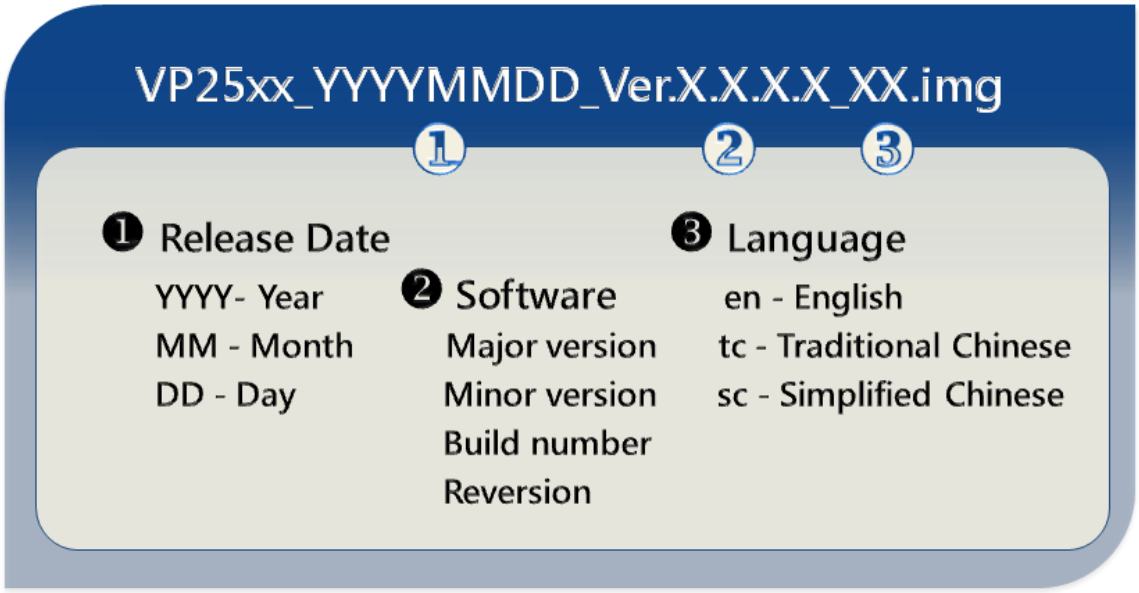
Step 1: Get the latest version of the ViewPAC OS image file



The latest version of the ViewPAC OS image file can be obtained from:

CD:\Napdos\vp-2000_ce50\OS_image\update_from_file\

http://www.icpdas.com/products/PAC/winpac/download/winpac_8000/download_os_images.htm

Step 2: Run the ESHELL software on the Host PC

ESHELL you can be obtained at:

CD:\Napdos\vp-2000_ce50\PC_Tools\ESHELL

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/pc_tools/eshell/

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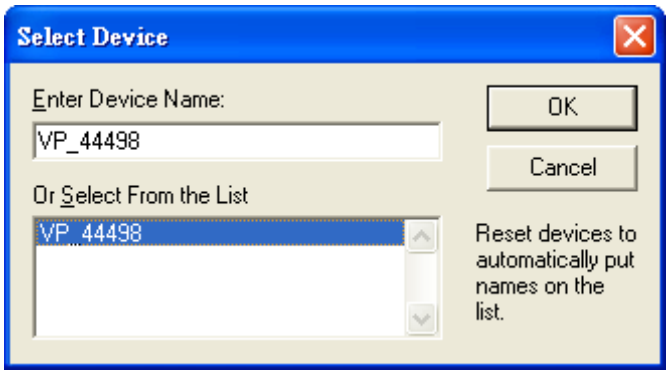
Step 3: Reboot the ViewPAC at update OS mode

Turn the rotary switch to “2”, and then reboot the ViewPAC.

Step 4: Select the device

Select the device which you want to update the OS image to.



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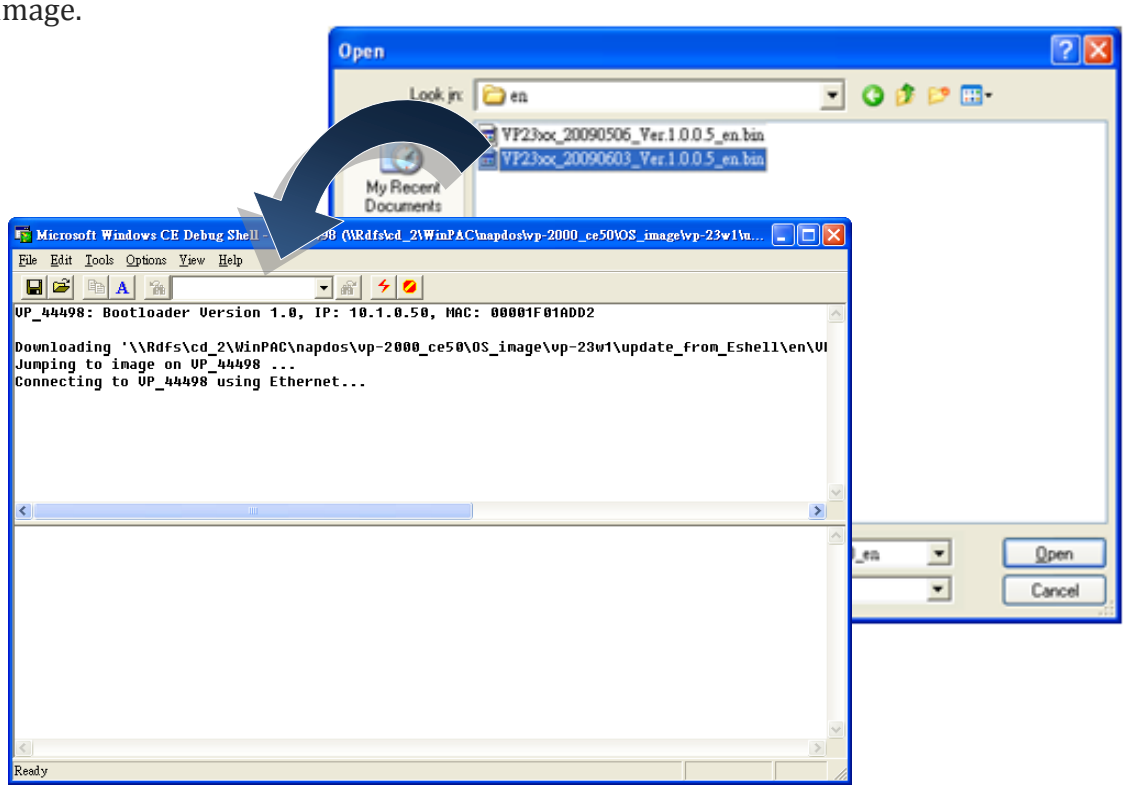
Step 5: Select the latest version of the ViewPAC OS image

Select “Select Image…” from File menu to select the latest version of the ViewPAC OS image.



After opening the OS image file, your Host PC may display a black screen, please wait while the OS loads.

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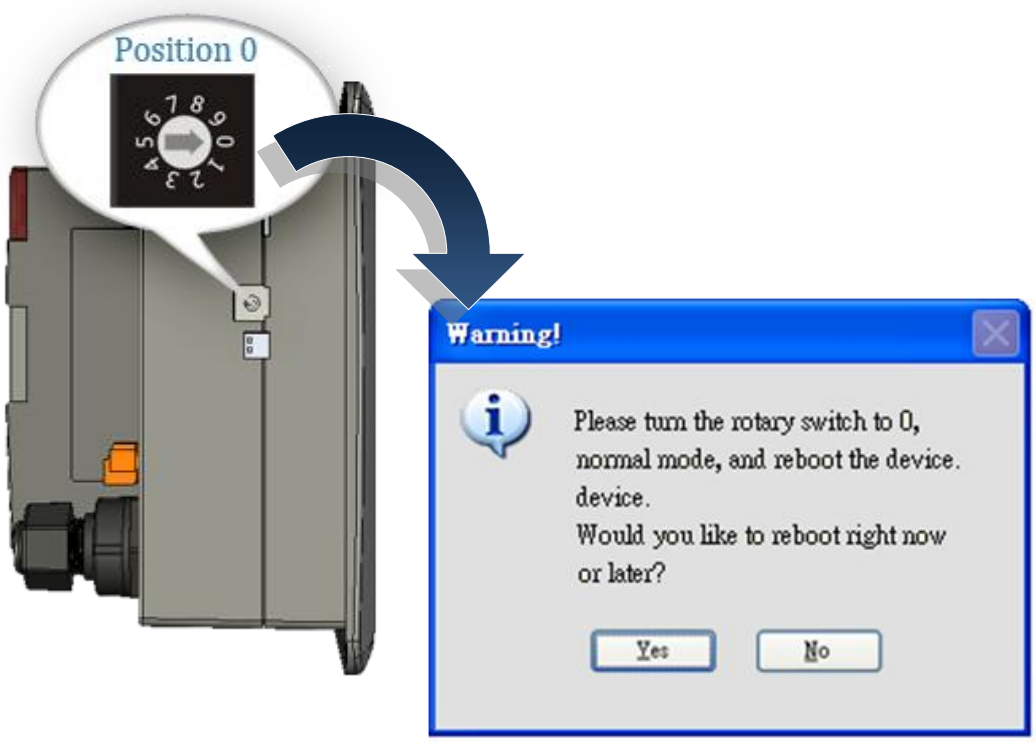
Step 6: On the “Warning !” dialog, before clicking the“Yes” button, you must first turn the rotary switch to the“0” position



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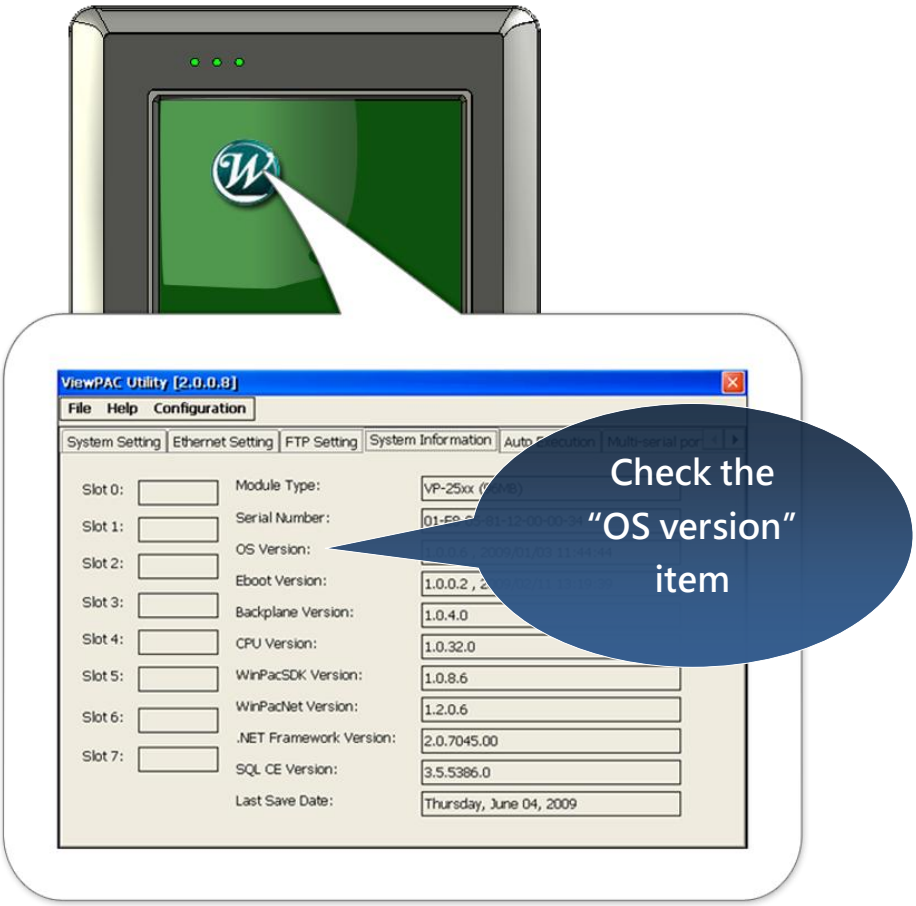
Step 7: Run the ViewPAC Utility to save the settings and reboot the ViewPAC Run the ViewPAC Utility, and then select the "Save and Reboot" command from the "File" menu to save the settings and reboot the ViewPAC.

After clicking the "Save and Reboot" command, the "Warning !" dialog will appear to confirm the reboot, make sure the ViewPAC at normal mode before confirmation.



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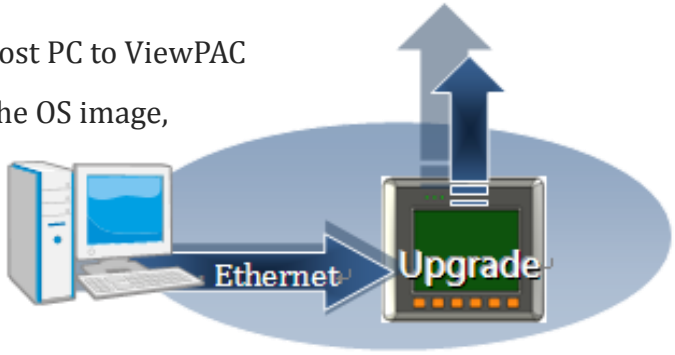
C.1.2.1. How to change the OS language

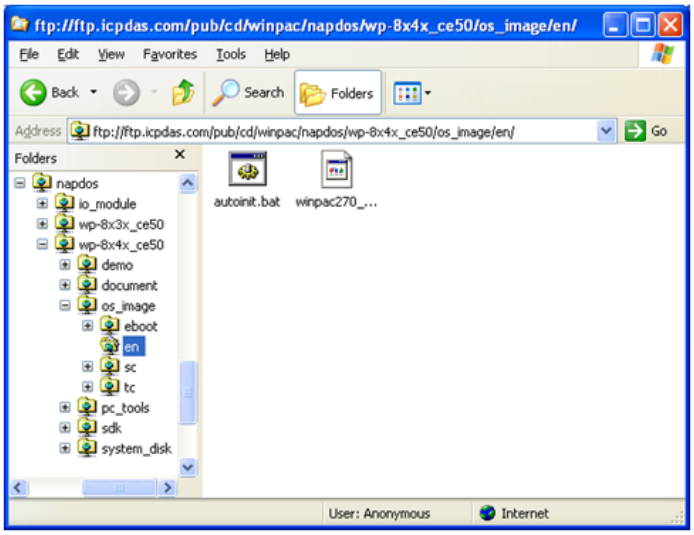
The ViewPAC OS support multi language that includes English, Traditional Chinese and Simplified Chinese.

By default, the OS update from Host PC to ViewPAC via LAN 1. Therefore, to update the OS image, make sure LAN 1 is connected.



Step 1: Get the latest version of the ViewPAC OS image file and the corresponding "autoinit.bat"file

Each language folder contains an OS image and a corresponding "autoinit.bat" file.



The latest version of the ViewPAC OS image file and the corresponding "autoinit.bat" file can be obtained from:

CD:\Napdos\vp-2000_ce50\OS_image\

http://www.icpdas.com/products/PAC/ViewPAC/download/ViewPAC_8000/download_os_images.htm

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Step 2: Update the corresponding "autoinit.bat"file

To update the corresponding "autoinit.bat" file of the ViewPAC controller which is located at: \System_Disk\ICPDAS\System

Step 3: Run the ESHELL software on the Host PC

ESHELL you can be obtained at:

CD:\Napdos\vp-2000_ce50\PC_Tools\ESHELL

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/pc_tools/eshell/

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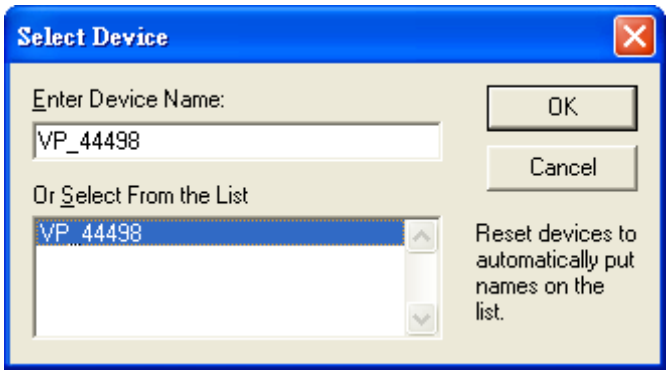
Step 4: Reboot the ViewPAC at update OS mode

Turn the rotary switch to “2”, and then reboot the ViewPAC.

Step 5: Select the device

Select the device which you want to update the OS image to.



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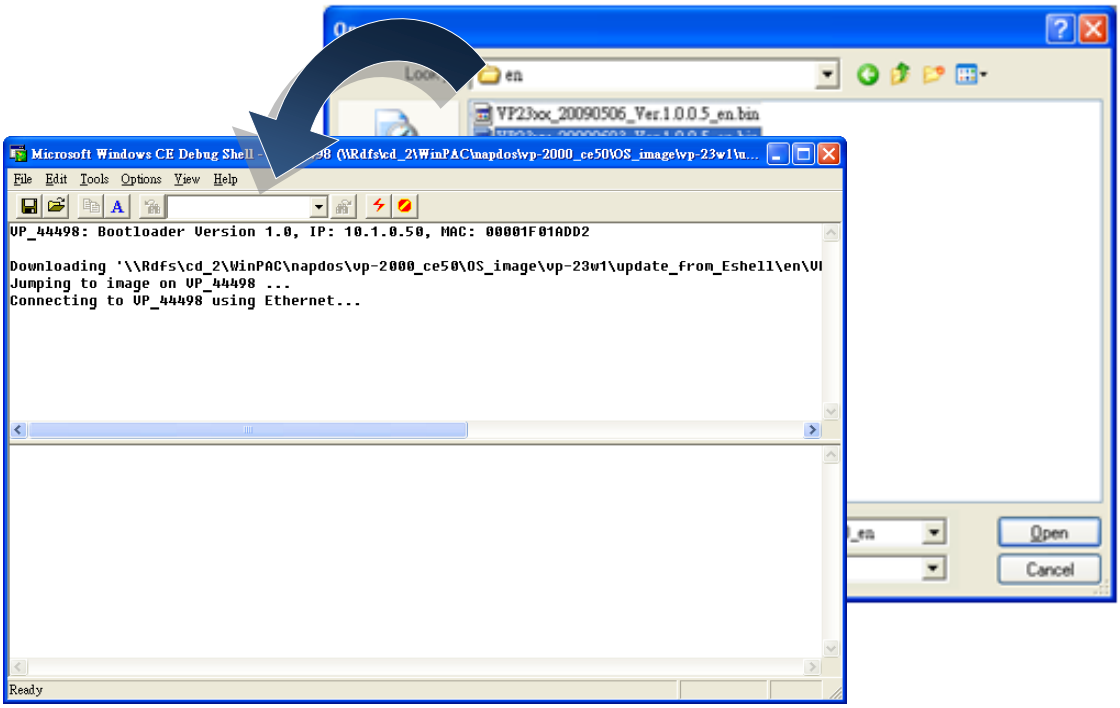
Step 6: Select the latest version of the ViewPAC OS image (Host PC side) Select "Select Image…" from File menu to select the latest version of the ViewPAC OS image.

.



After opening the OS image file, your Host PC may display a black screen, please wait while the OS loads.

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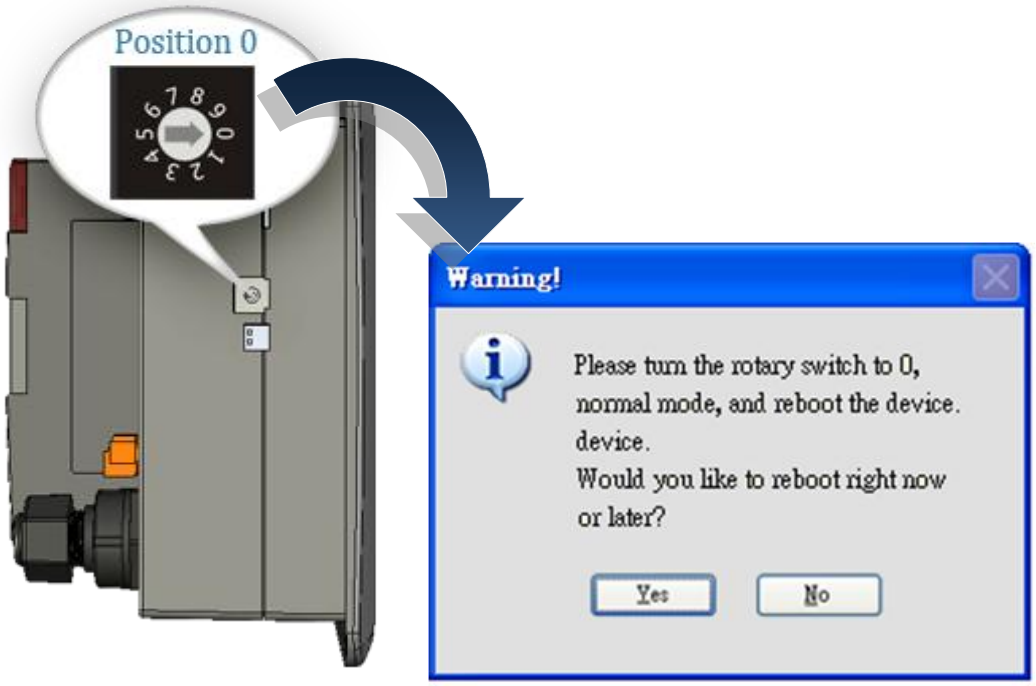
Step 7: Save the configuration and reboot the View PAC at normal mode



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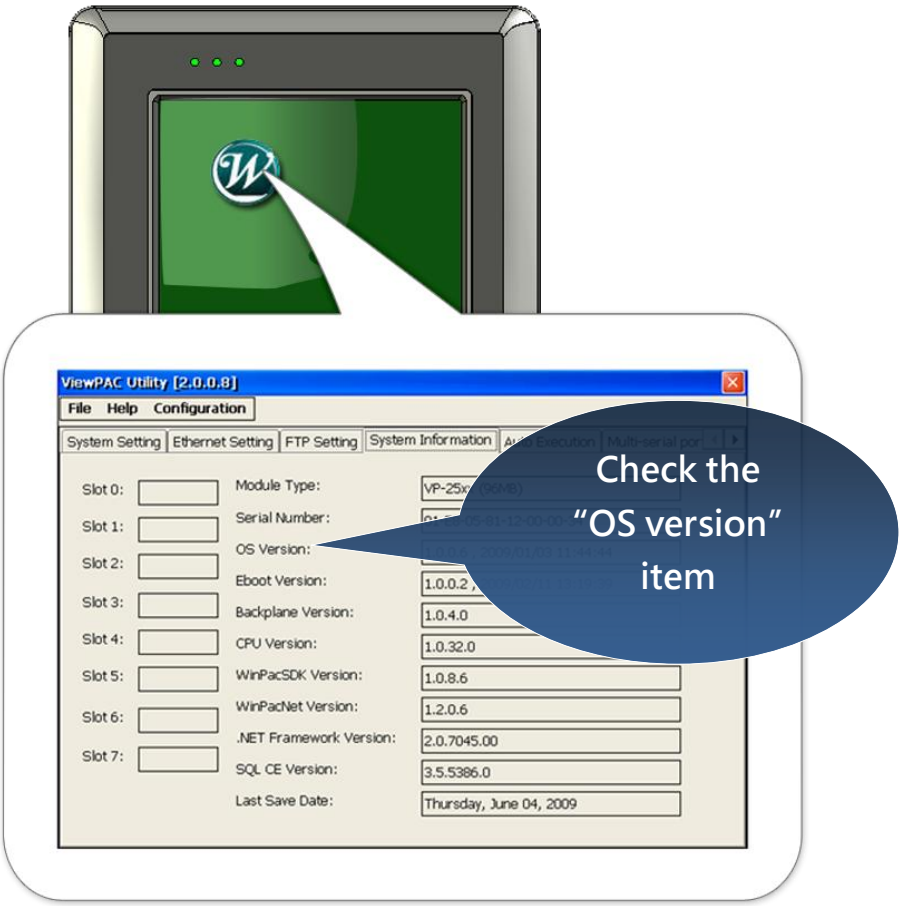
Step 8: Run the ViewPAC Utility to check the current OS version

Run the ViewPAC Utility, and then select the “System Information” tab to check the current OS version.



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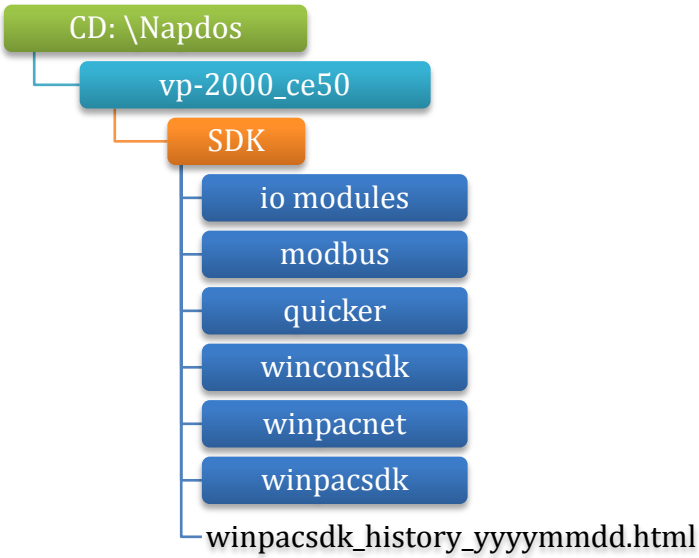
C.1.3. How to update ViewPAC SDKs

The ViewPAC SDK are located in:

CD:\Napdos\vp-2000_ce50\SDK



By eVC and donet development tools, the ViewPAC SDK installation are divided into the following two parts:

i. ViewPAC SDK updates for eMbedded Visual C++

ii. ViewPAC SDK updates for dotnet

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ViewPAC SDK updates for eMbedded Visual C++

To determine the SDK version that is compatibly running on the ViewPAC, you can read the "Release Note" which is located under each SDK folder, these files provides important updated information for what we fixed and added.

Step 1: Get the latest version of the eMbedded Visual C++ components

The latest version of the eMbedded Visual C++ components can be obtained from:

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/sdk/ViewPACsdk/

Step 2: Copy the latest version of header files and libraries to Host PC

The header files are located at:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include

The libraries are located at:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib

Step 3: Copy the latest version of DLL files to ViewPAC

The DLL files are located at:

\System_Disk\ICPDAS\System

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ViewPAC SDK updates for dotnet

To determine the SDK version that is compatibly running on the ViewPAC, you can read the “Release Note” which is located under each SDK folder, these files provides important updated information for what we fixed and added.

Step 1: Get the latest version of the dotnet components

The latest version of the eMbedded Visual C++ components can be obtained from:

ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/ViewPAC_ce50/sdk/ViewPACnet/

Step 2: Copy the latest version of DLL to Host PC and ViewPAC

The DLL files on Host PC are located at anywhere only the solution can reference it.

The DLL files on ViewPAC are located at the same directory as the .exe file.

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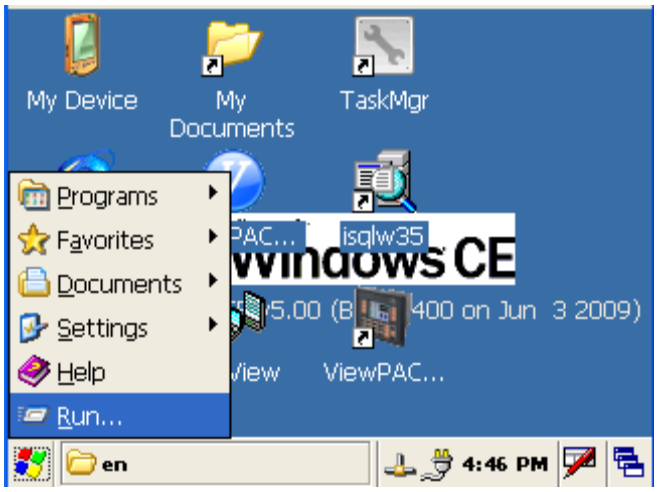
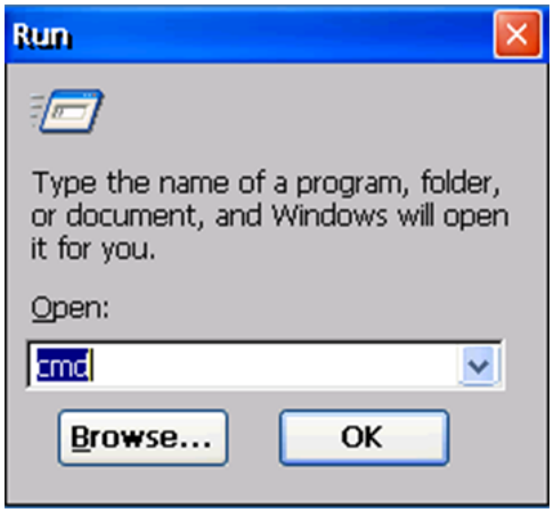
C.2. How to establish a new telnet and FTP account

To establish a new telnet and FTP account, please perform the following steps:

Step 1: On the ViewPAC controller side, select the " Start" menu, and then click the "Run..." command



Step 2: On the "Run" dialog, type "cmd" in the field and then click the "OK" button



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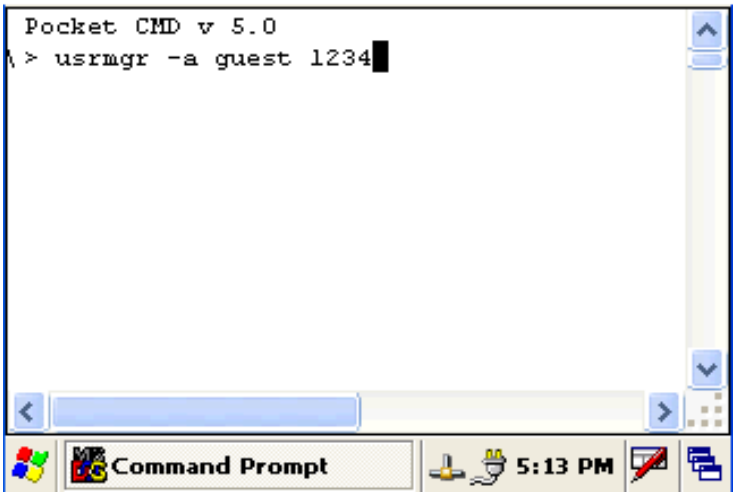
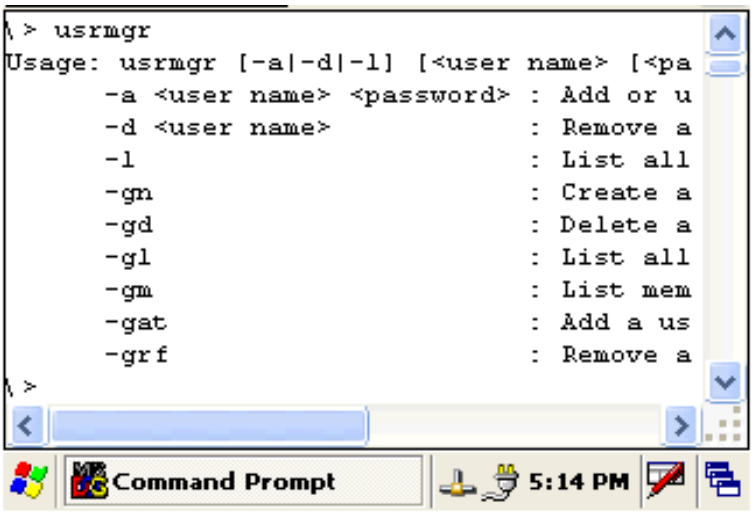
Step 3: Establish a new account

[Syntax] usrmgr –a <username> <password>



For more information about managing accounts, you just type "usrmgr" command to get a complete list of supported commands.

The setting may not save. That is, after rebooted, the setting will disappear and you should set the account again.



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C.3. How to online debug ViewPAC

Debugging is a process that you use to find and resolve errors, or bugs, in a program.

C.3.1. Debug ViewPAC programs in EVC++

Step 1: On the “Tools” menu, click “Configure Platform Manager…” command

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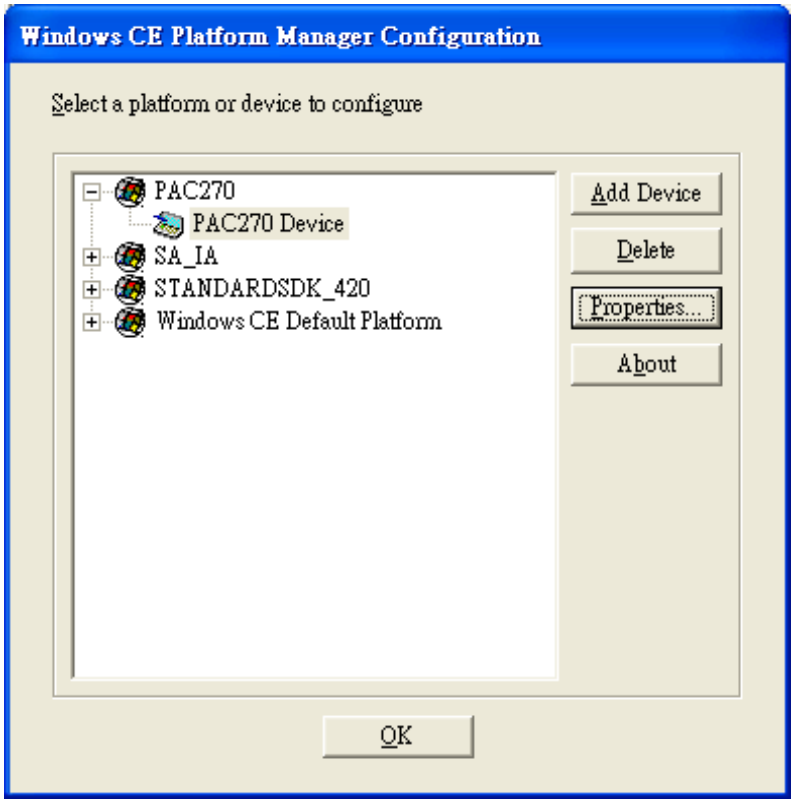
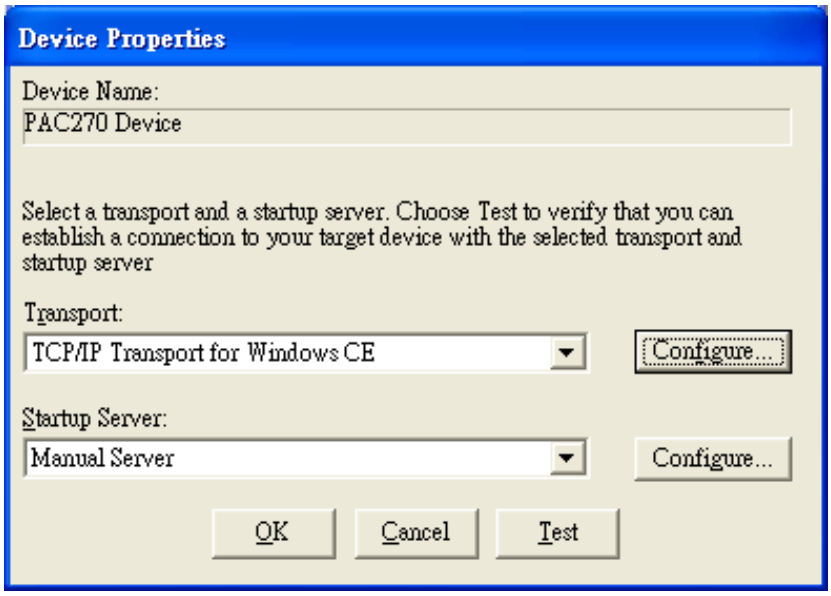
Step 2: On the "Windows CE Platform Manager Configuration" dialog, click the "Properties…" button



Step 3: On the "Device Properties" dialog, click the "Configure…" button



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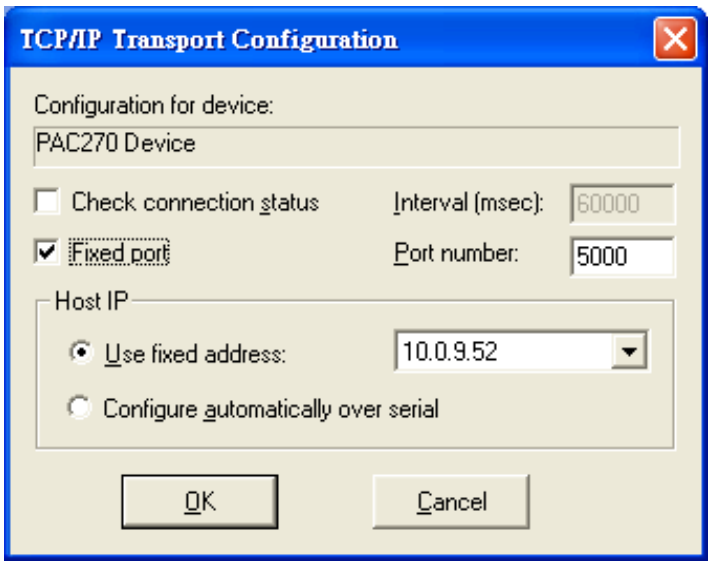
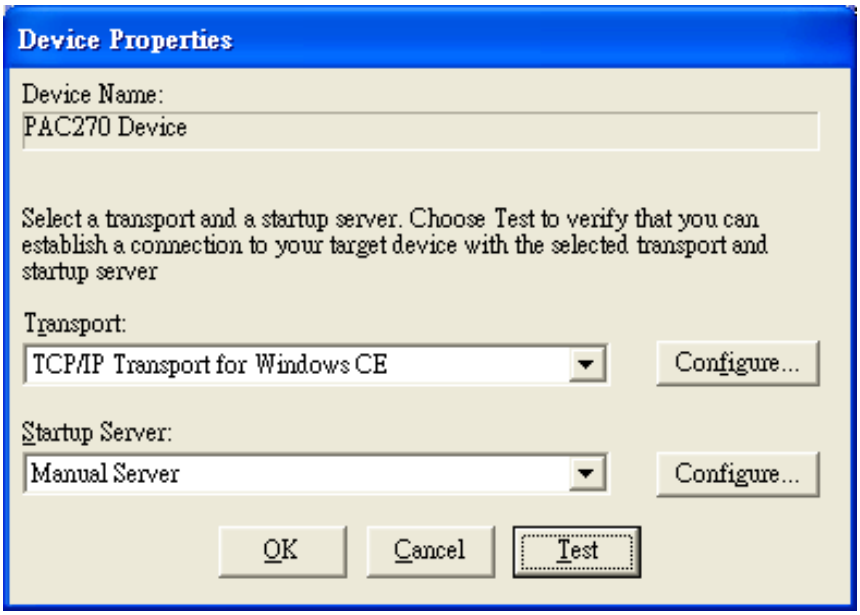
Step 4: On the "TCP/IP Transport Configuration" dialog, select the "Fixed port" check box, and then click the "OK" button



Step 5: On the "Windows CE Platform Manager Configuration" dialog, click the "Test" button



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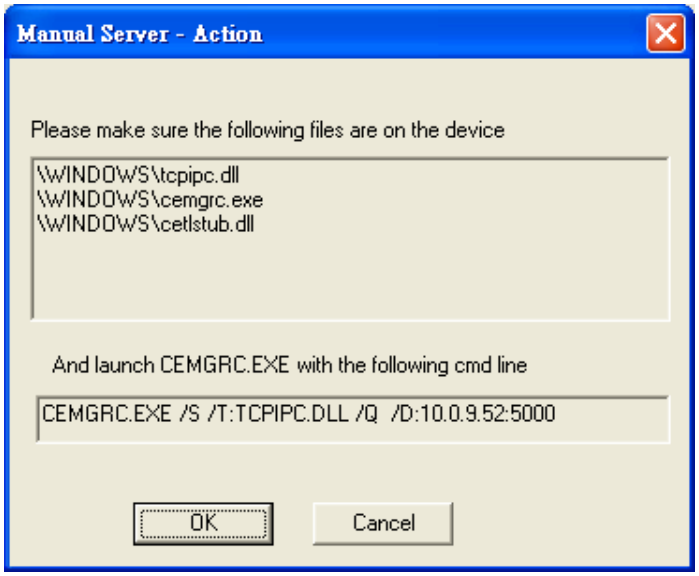
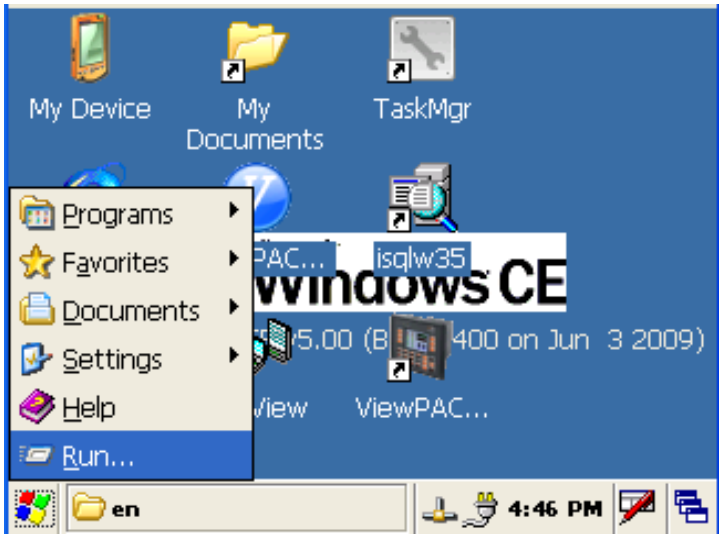
Step 6: The "Manual Server - Action" dialog will appear displaying a command line, before click the "OK" button to close dialog, turn to the ViewPAC controller side to do the next two-steps



Step 7: On the ViewPAC controller side, select the " Start" menu, and then click the "Run..." command



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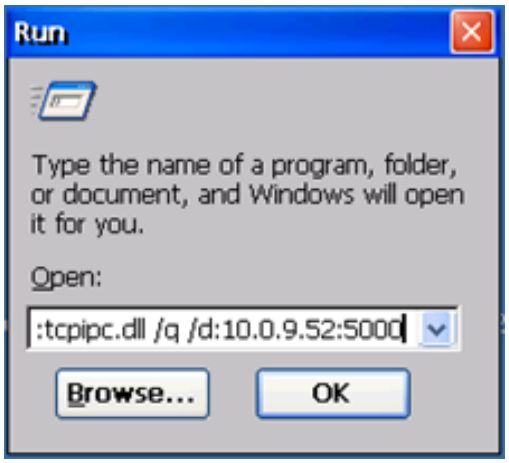
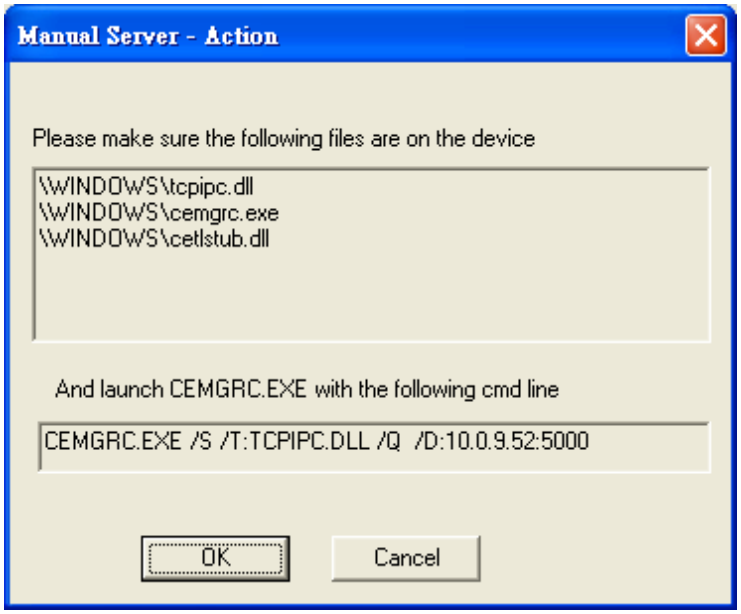
Step 8: On the "Run" dialog, type the command which displays in step 5 and then click the "OK" button



Step 9: Return to the Host PC side, on the "Manual Server – Action" dialog, click the "OK" button



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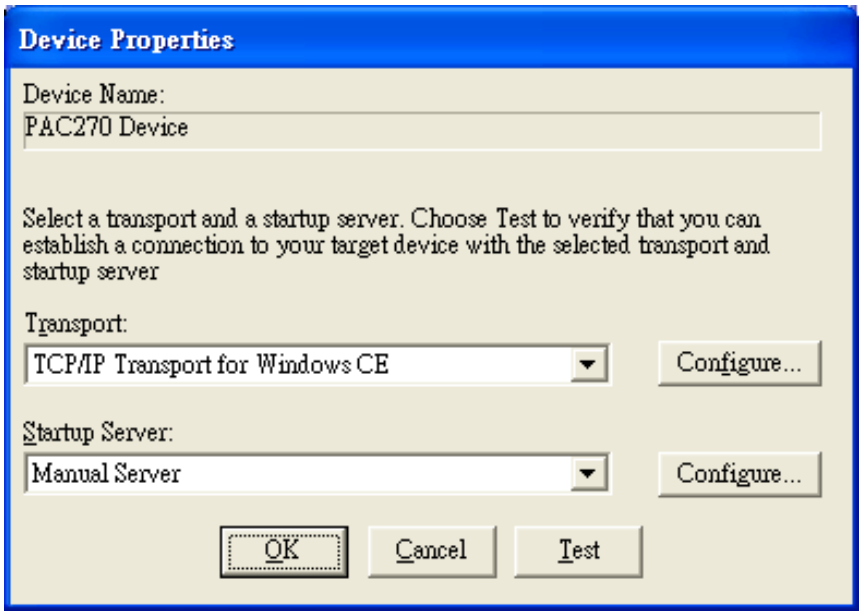
Step 10: On the "Testing Device Connection" dialog, click the "OK" button

Step 11: On the "Device Properties" dialog, click the "OK" button



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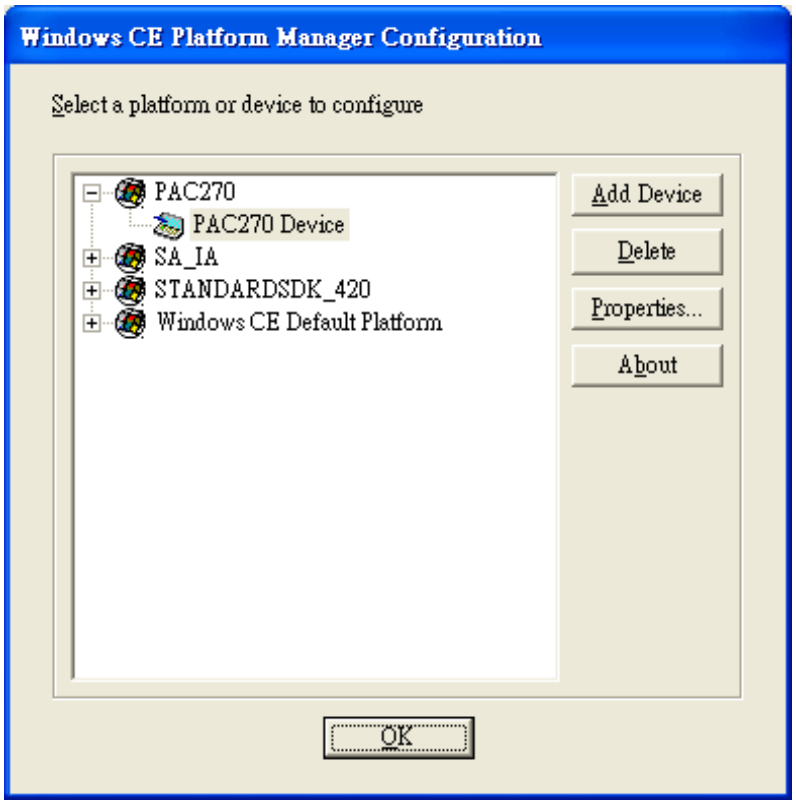
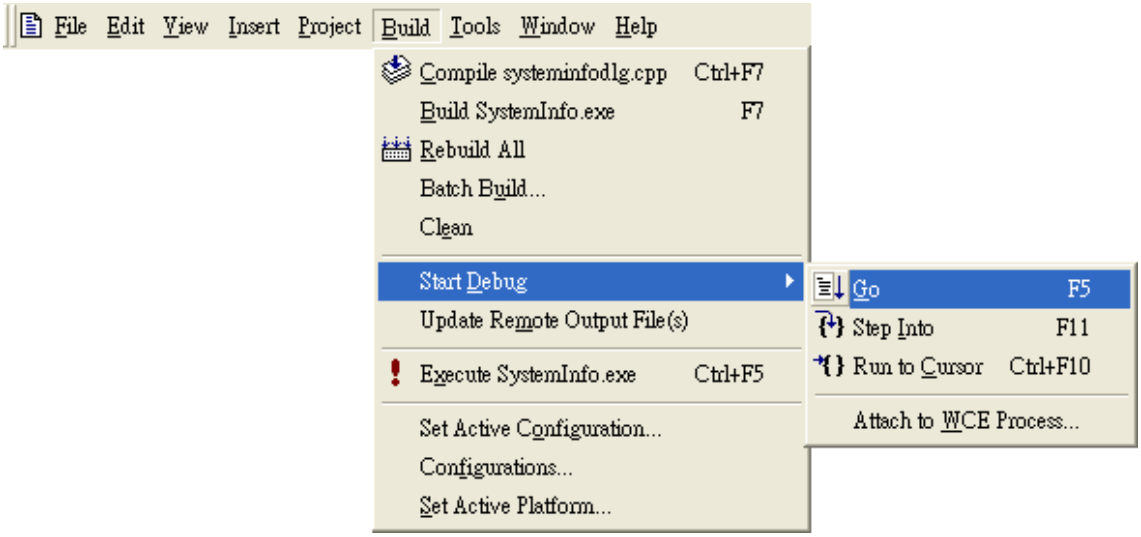
Step 12: On the "Windows CE platform or device to configure" dialog, click the "OK" button



Step 13: On the "Build" menu, select the "Start Debug" command and then click the "Go" command



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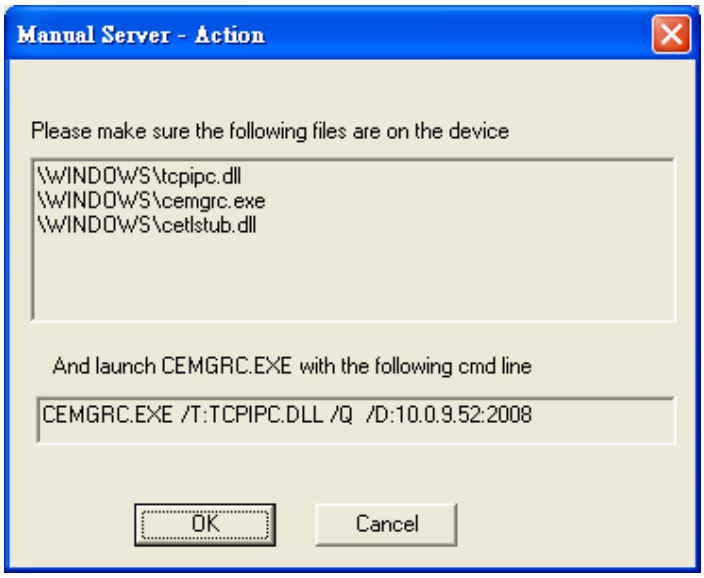
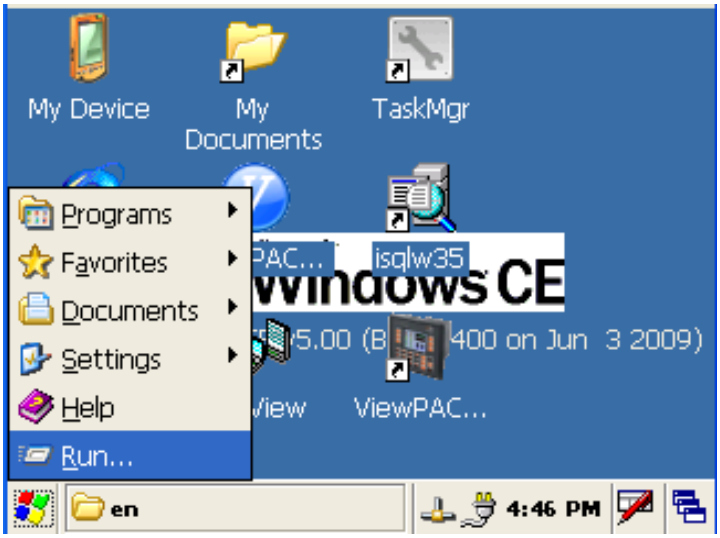
Step 14: The "Manual Server - Action" dialog will appear displaying a command line, before click the "OK" button to close dialog, turn to the ViewPAC controller side to do the next two-steps



Step 15: On the ViewPAC controller side, select the " Start" menu, and then click the "Run..." command



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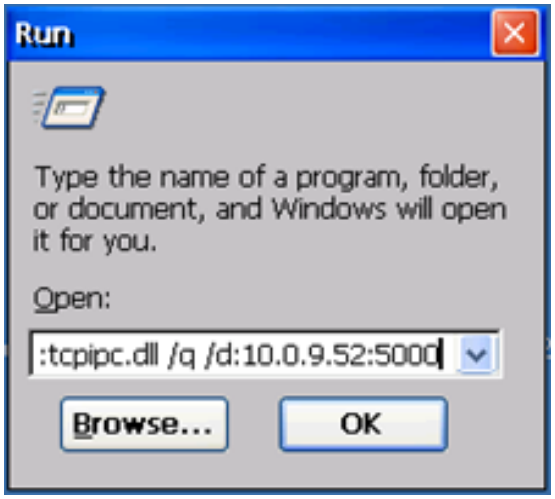
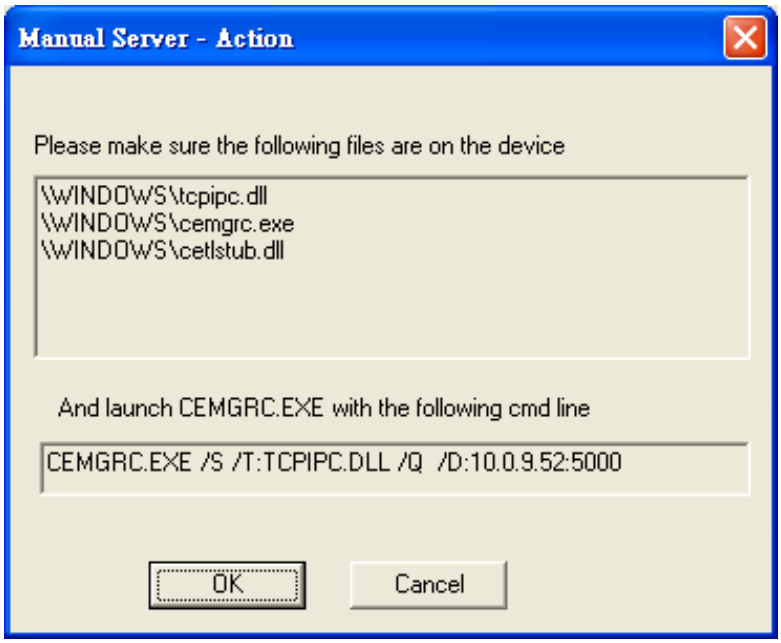
Step 16: On the "Run" dialog, type the command which displays in step 5 and then click the "OK" button



Step 17: Return to the Host PC side, on the "Manual Server – Action" dialog, click the "OK" button



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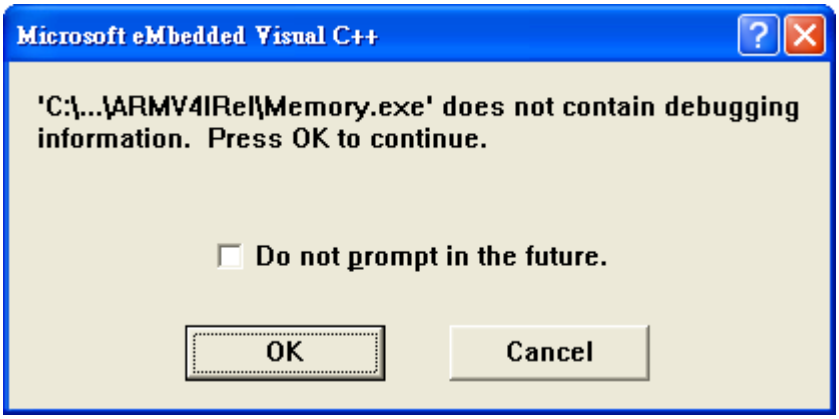
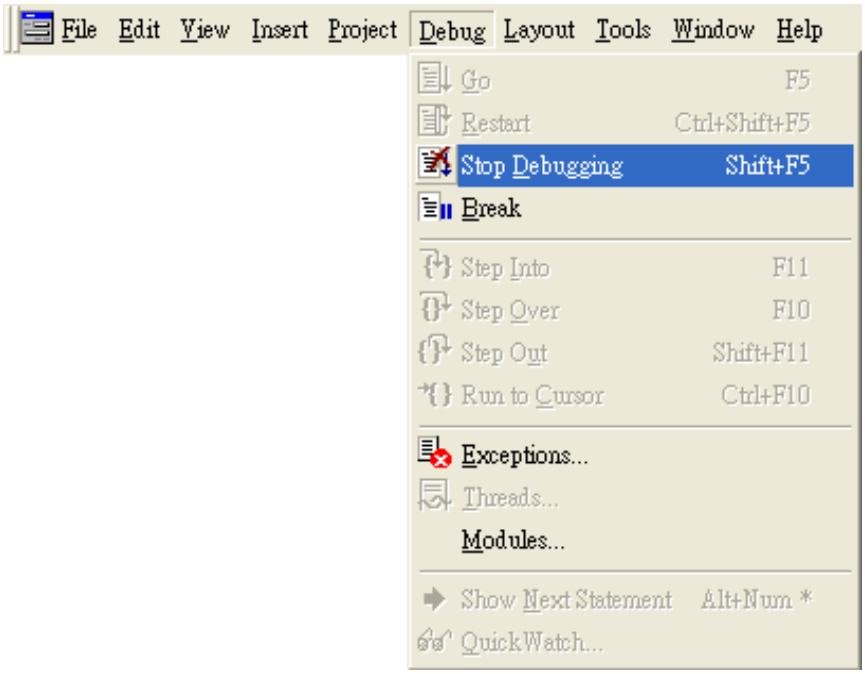
Step 18: On the "Manual Server - Action" dialog, click the "OK" button


Microsoft eMbedded Visual C++
'C:\...\ARMV4IRel\Memory.exe' does not contain debugging information. Press OK to continue.
Do not prompt in the future.
OK
Cancel

Step 19: Connection established. Then you can debug on line.

If you want to quit the debugger and return to editing, you can click the "Stop Debugging "button from "Debug" menu



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C.3.2. Debug ViewPAC programs in Visual Studio 2005/2008

Debugging in Visual Studio 2005/2008 are provided by ViewPAC OS image V 1.3.0.4 or later.

Step 1: Make sure the following file are listed with the matching version numbers

Path	File
C:\Program Files\Common Files\Microsoft Shared\CoreCon\1.0\Bin	1. ActiveSyncBootstrap.dll 2. ConMan2.dll 3. ConManPS.dll 4. DesktopDMA.dll 5. eDbgTL.dll 6. TcpConnectionC.dll
C:\Program Files\Common Files\Microsoft Shared\CoreCon\1.0\Bin\1033	conmanui.dll
C:\Program Files\Common Files\Microsoft Shared\CoreCon\1.0\Target\wce400\armv4i	1. DeviceDMA.dll 2. eDbgTL.dll 3. TcpConnectionA.dll 4. clientshutdown.exe 5. CMAccept.exe 6. ConmanClient2.exe

Step 2: If the version matches correctly and the entire file are there, copy the following files to ViewPAC :\ System_Disk\ICPDAS\System folder

- Clientshutdown.exe
- ConmanClient2.exe
- CMaccept.exe
- eDbgTL.dll
- TcpConnectionA.dll

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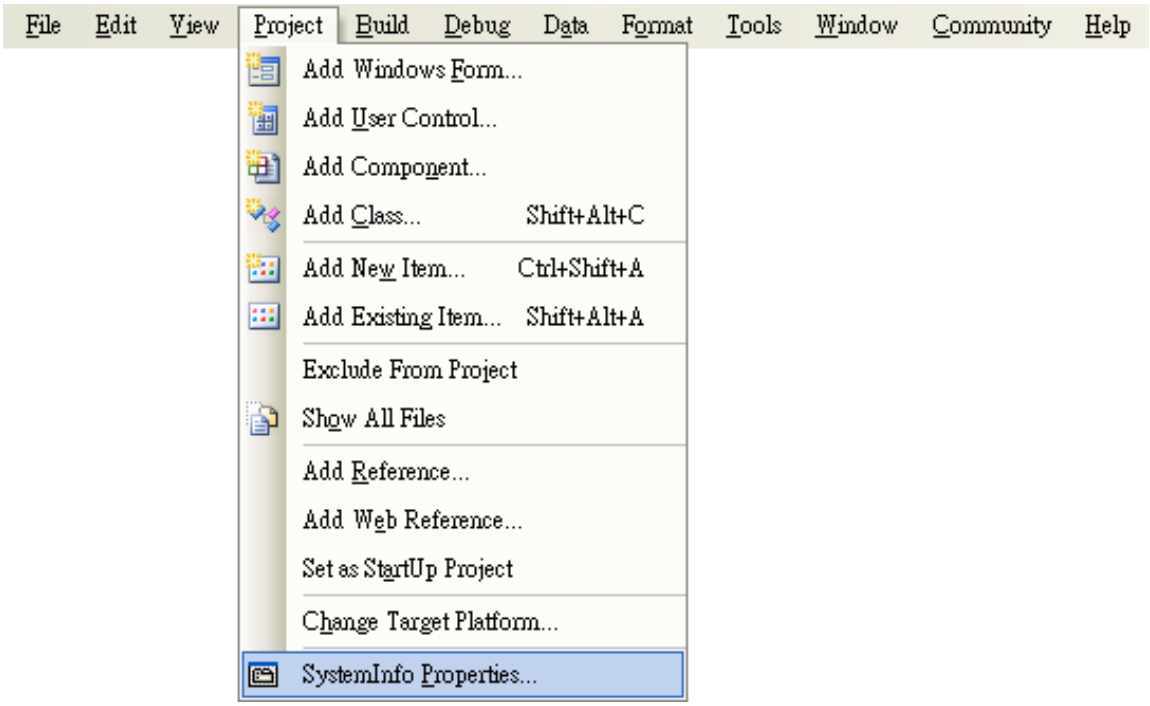
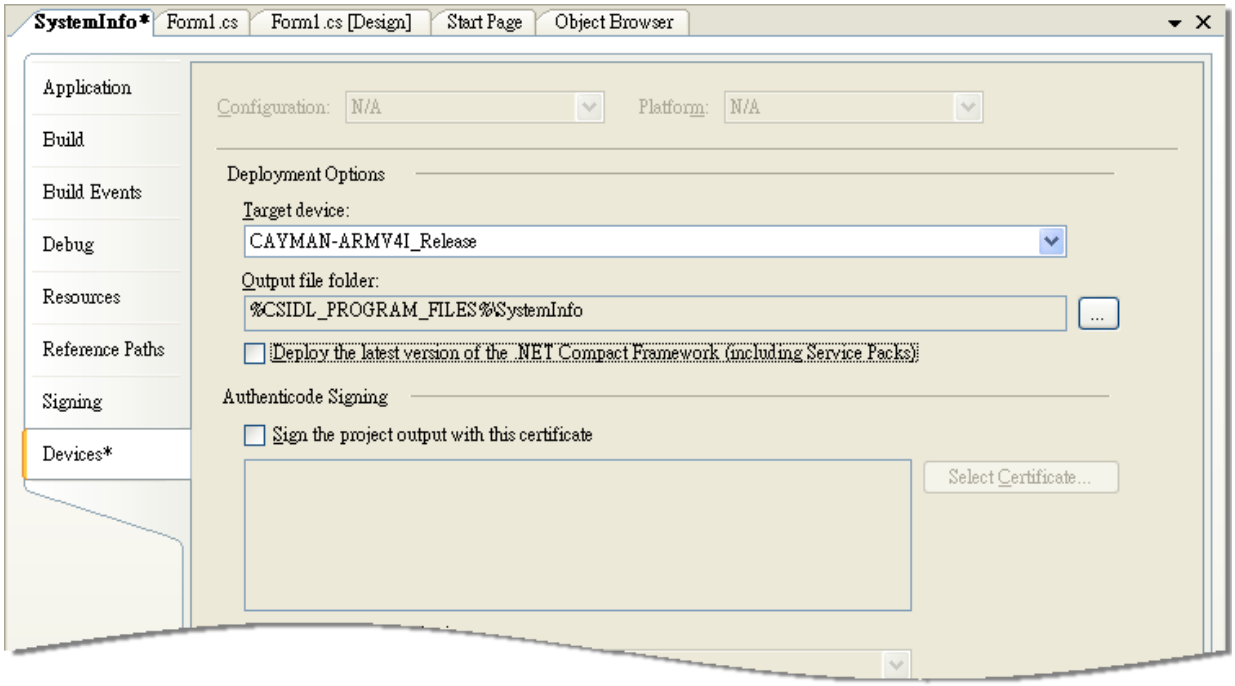
Step 3: On the "Project" menu, click "[Project Name] Properties..." command



Step 4: On the "SystemInfo*" tab, unselect "Deploy the latest version of the .NET compact Framework (includeing Service Packs)" check box



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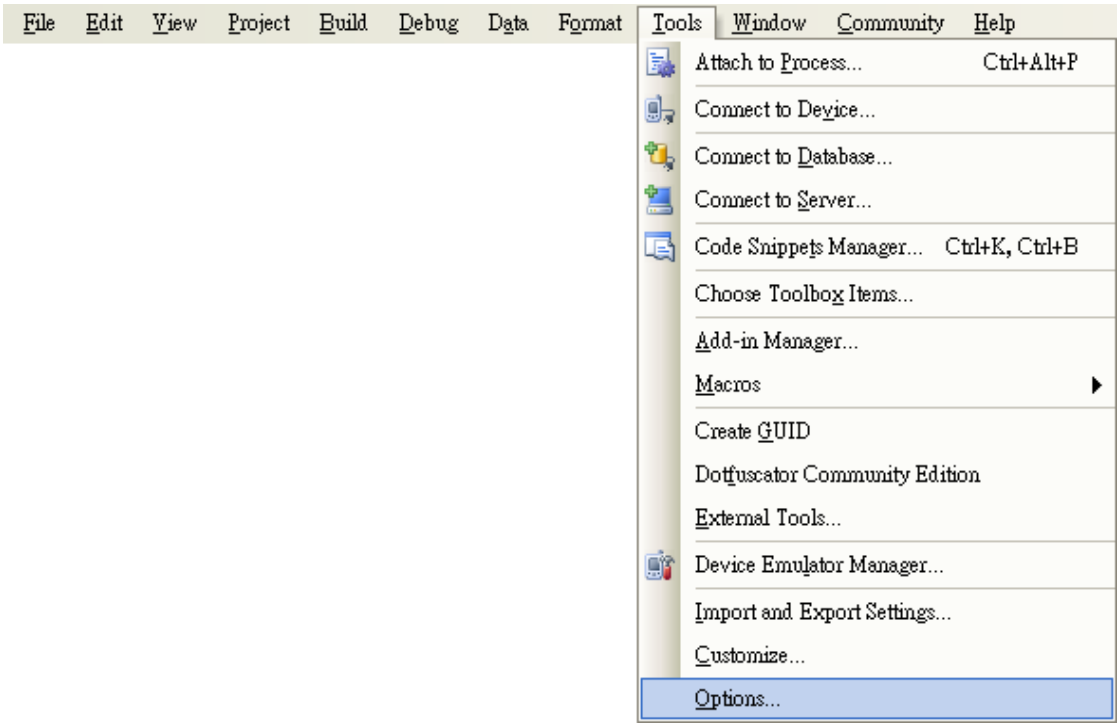
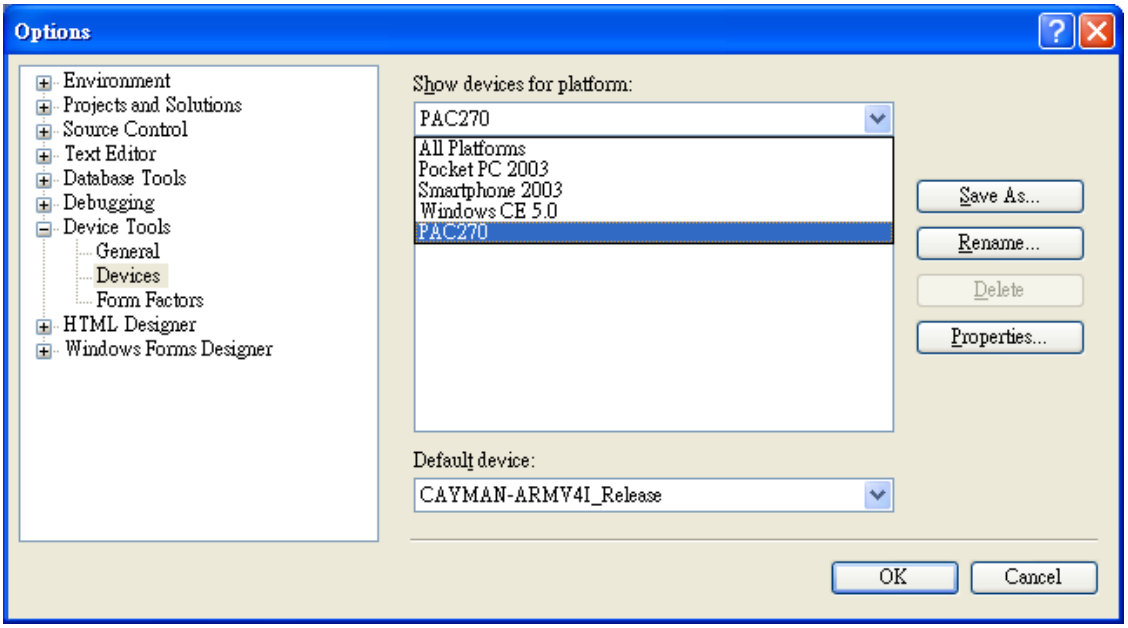
Step 5: On the "Tools" menu, click "Options..." command



Step 6: On the "Options" dialog, select "PAC 270" from the "Show devices platform" list, and then click the "Properties..." button



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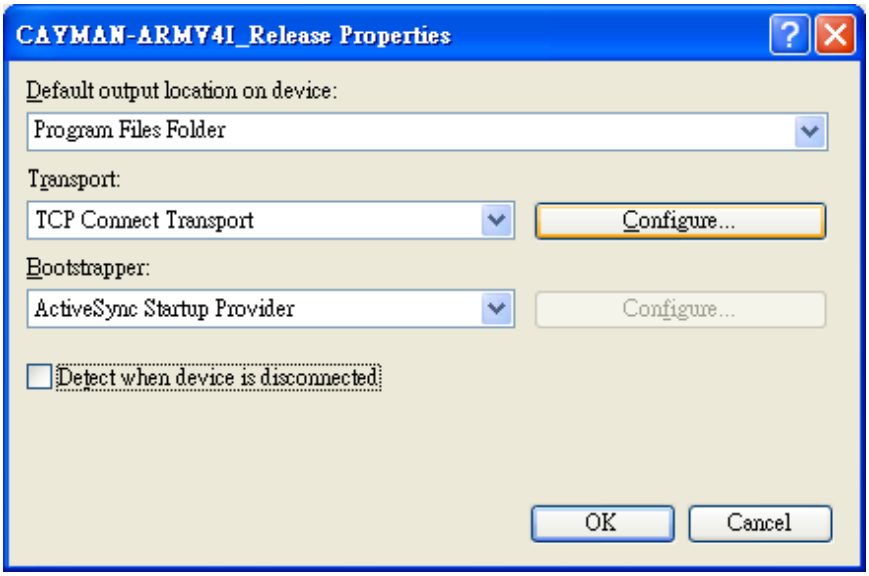
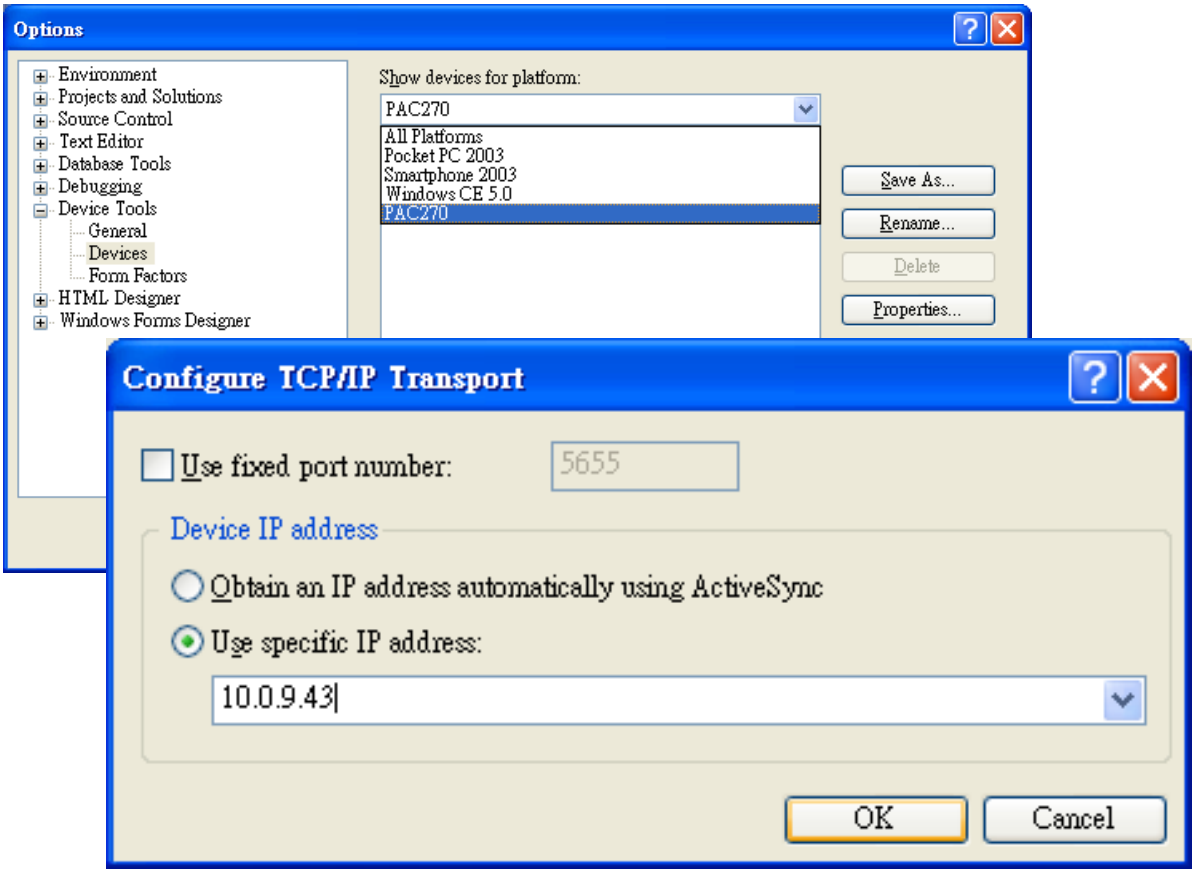
Step 7: On the "CAYMAN-ARMV4I_Release Properties" dialog, click the "Configure…" button



Step 8: On the "Configure TCP/IP Transport" dialog, select the "Use specific IP address" option and type the IP address of ViewPAC, and then click the "OK" button



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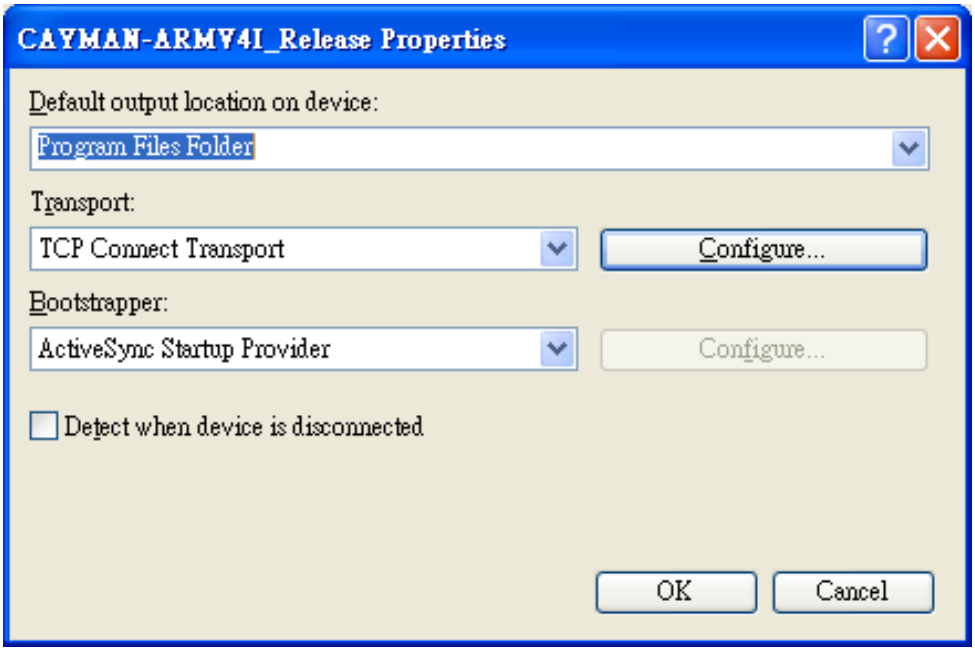
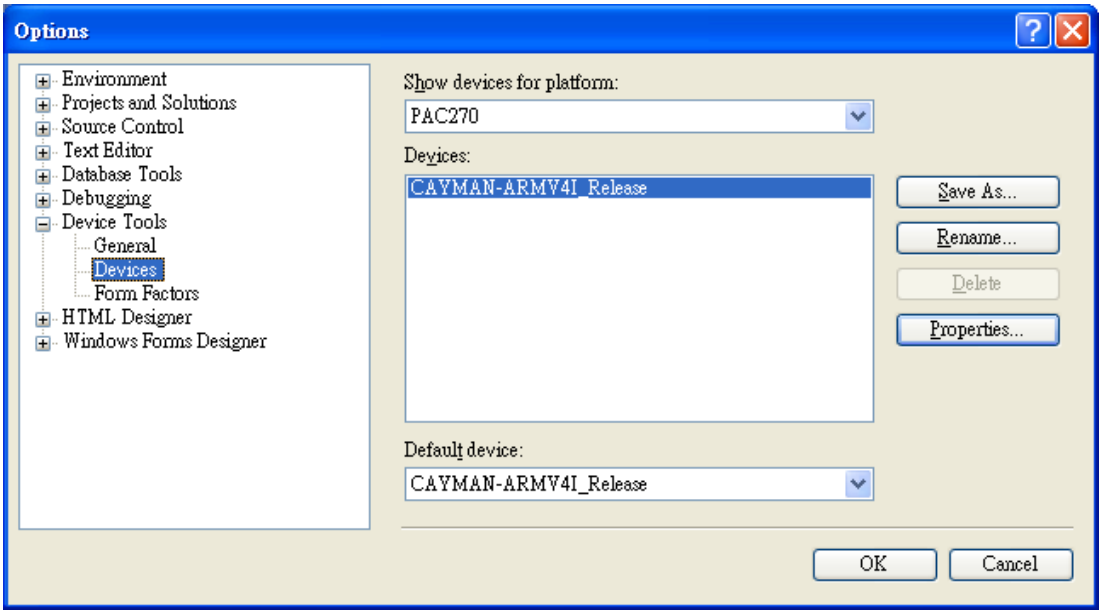
Step 9: On the "CAYMAN-ARMV4I_Release Properties" dialog, click the "OK" button



Step 10: On the "Options" dialog, click the "OK" button



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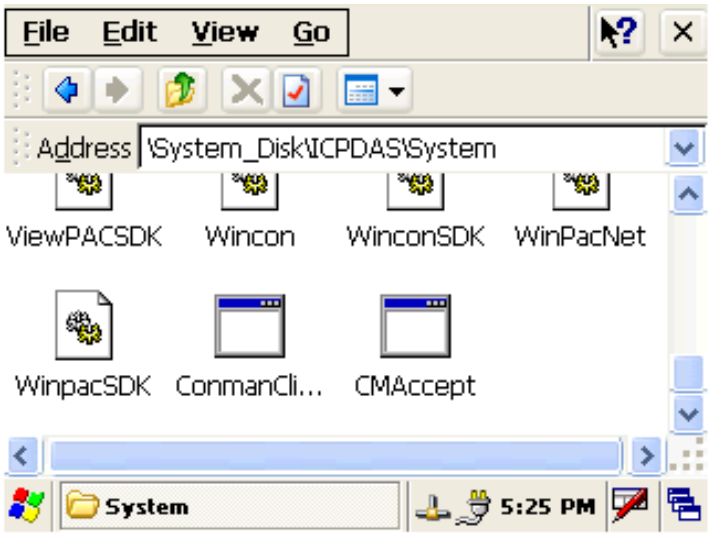
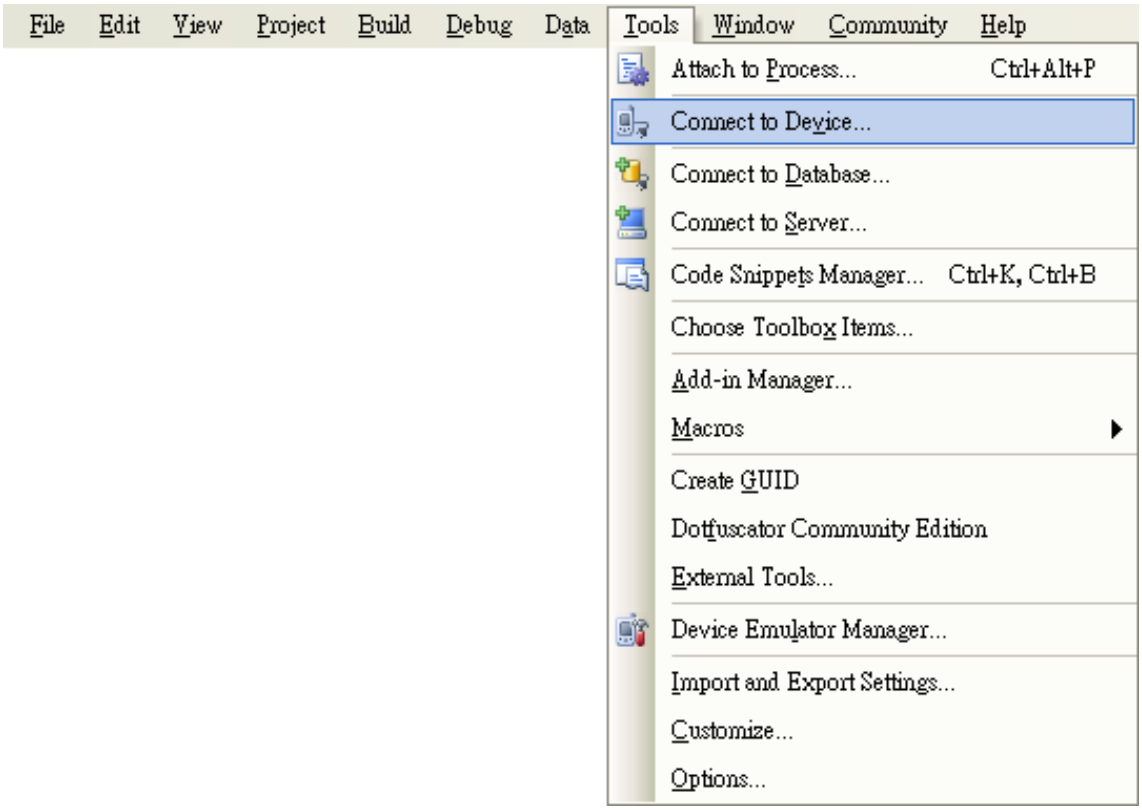
Step 11: On the ViewPAC controller side, run the "CommanClient2" and the "CMAccept.exe" applications which is located at: \System_Disk\ICPDAS\System



Step 12: On the "Tools" menu, click "Connect to Device..." command



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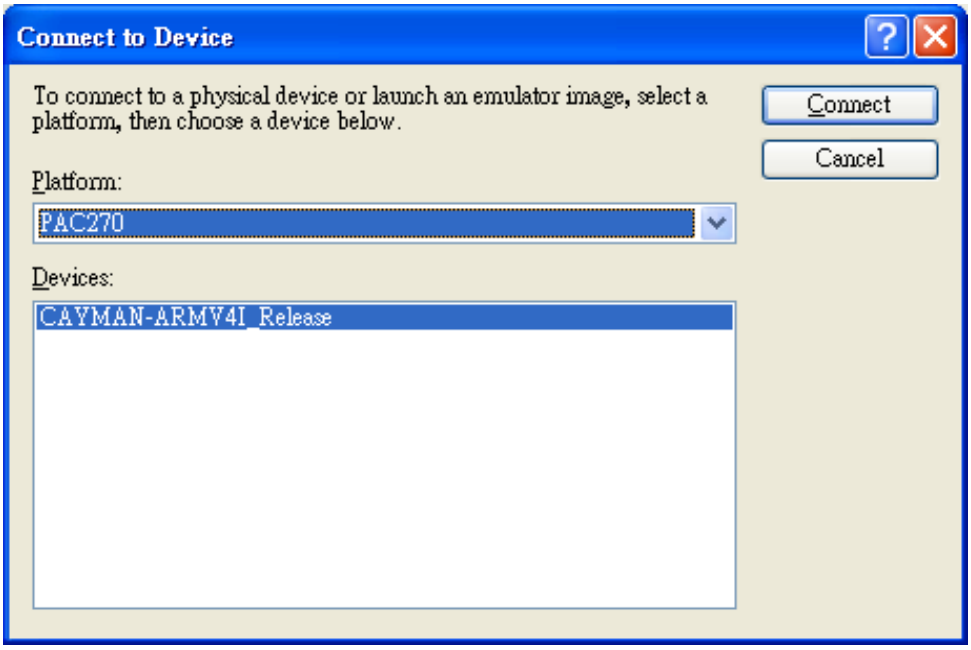
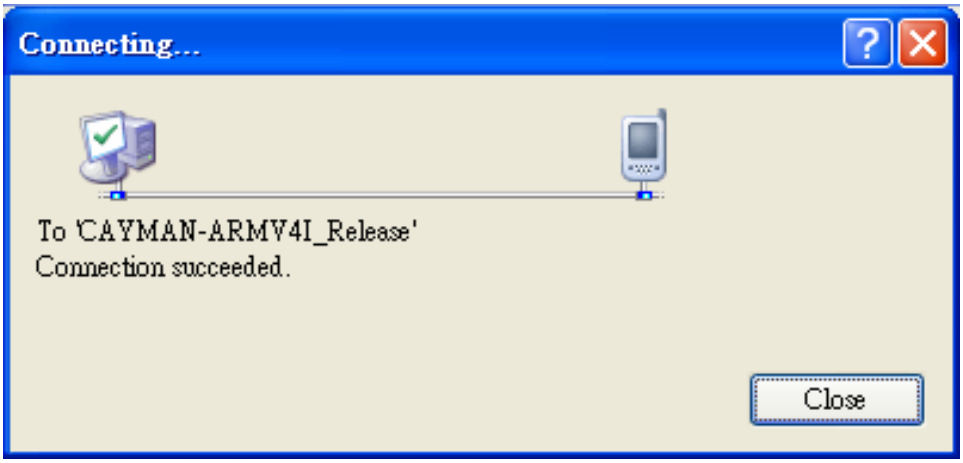
Step 13: On the "Connect to Device" dialog, select "PAC 270" from "Platform" list and then click the "Connect" button



Step 14: On the "Tools" menu, click "Connect to Device..." command



Step 15: Connection established. Then you can debug on line.

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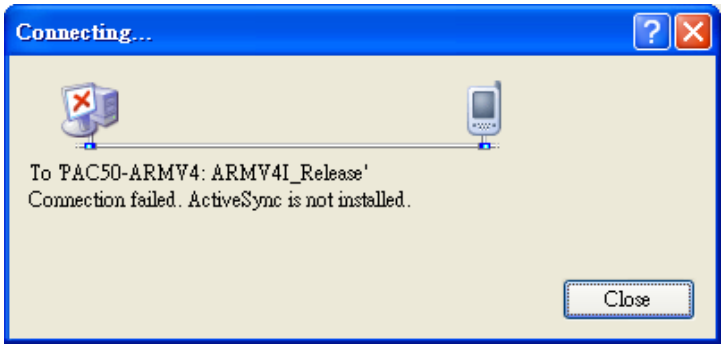
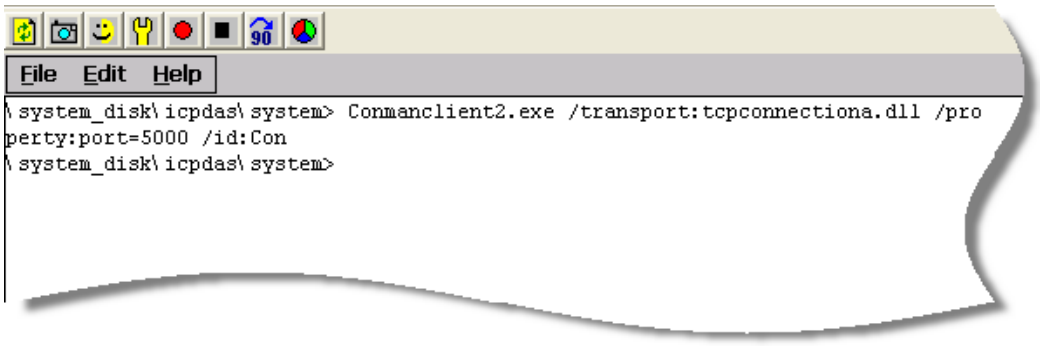
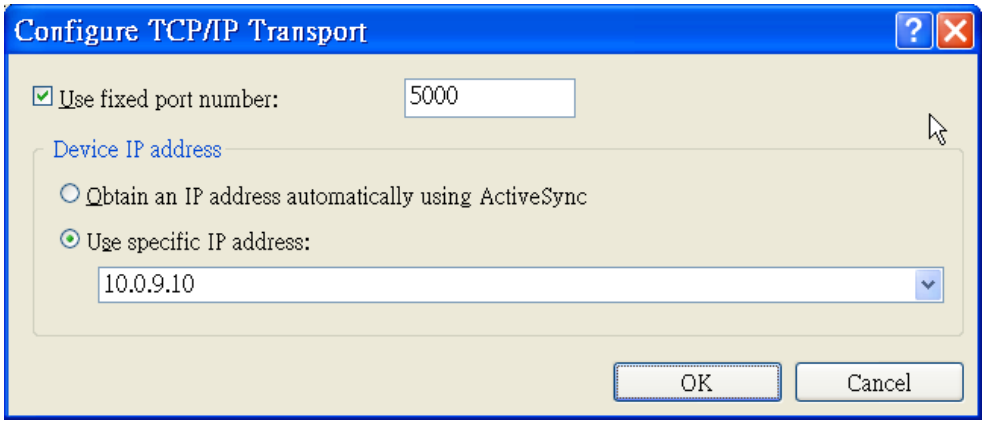
FAQ:

If the connection fails shown as follow, return to step 11 to do the action below



Open the command prompt, run the "CommanClient2.exe/transport:tcpconnectiona.dll/property:port=5000/id:Con" at: \System_Disk\ICPDAS\System, and then run the "CMAccept.exe"


File Edit Help
\ system_disk\ icpdas\ system> Conmanclient2.exe /transport:tcpconnectiona.dll /pro
perty:port=5000 /id:Con
\ system_disk\ icpdas\ system>



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C.4. How to recompile WinCon programs

To recompile Wincon programs to run on ViewPAC, certain components of the programs require adjustments that divides into two parts:

1. Compiler old programs which ran on Wincon 8x3x and 8x4x
2. Modify .vcp file to upgrade the old WinCon project

In general, you only need to do part 1, after this, if the program still can't be compiled to an application, the part 2 just need to do.

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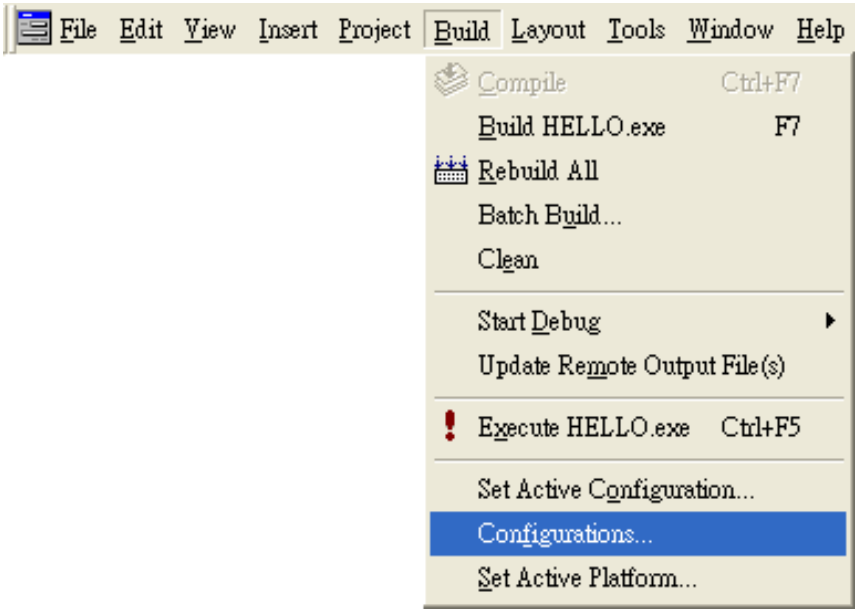
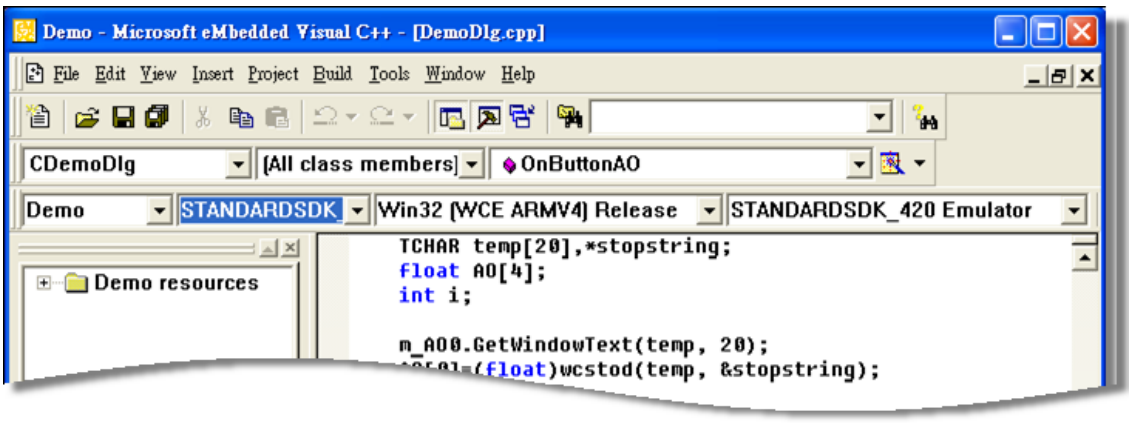
C.4.1. Compiler old programs which ran on Wincon 8x3x and 8x4x

Step 1: Open project which programmed in WinCon using eMbedded Visual C++

Step 2: On the "Build" menu, click "Configurations" command



Step 3: Make sure the CPU type is "STANDARDSDK"



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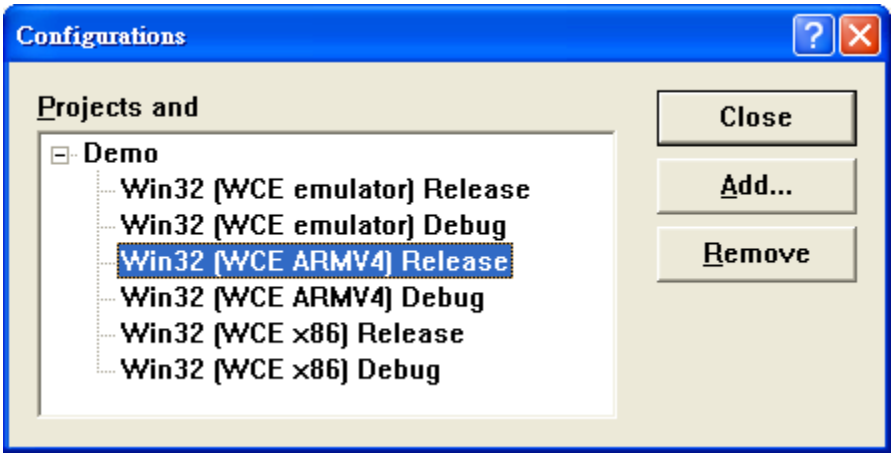
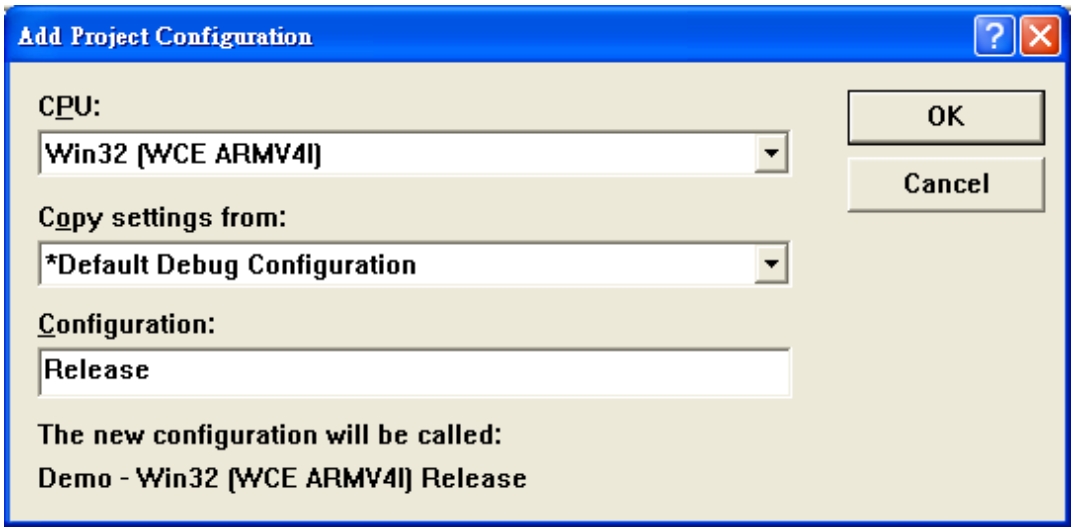
Step 4: On the "Configurations" dialog, click the "Add..." button



Step 5: On the "Add Project Configuration" dialog, choose one of the CPU type and then click the "OK" button.



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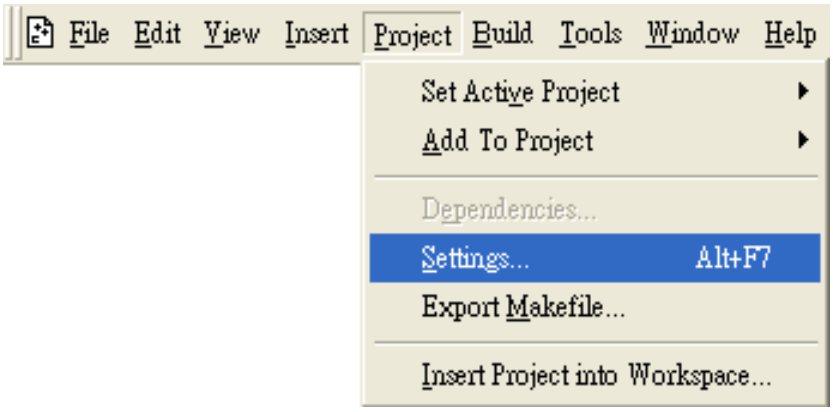
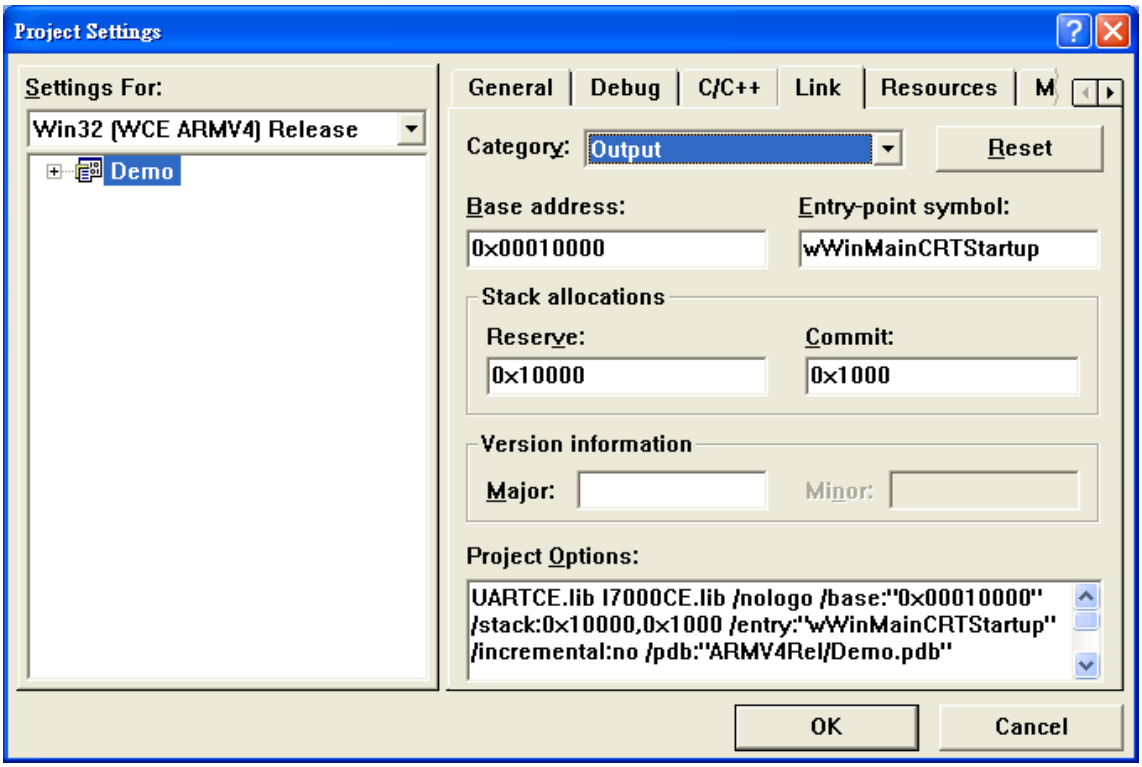
Step 6: On the "Project" menu, click "Settings..." command



Step 7: On the "Project Settings" dialog, select the "Link" tab and change the value of the "Entry-point symbol" field, "WinMainCRTStarup" to "wWinMainCRTStartup",



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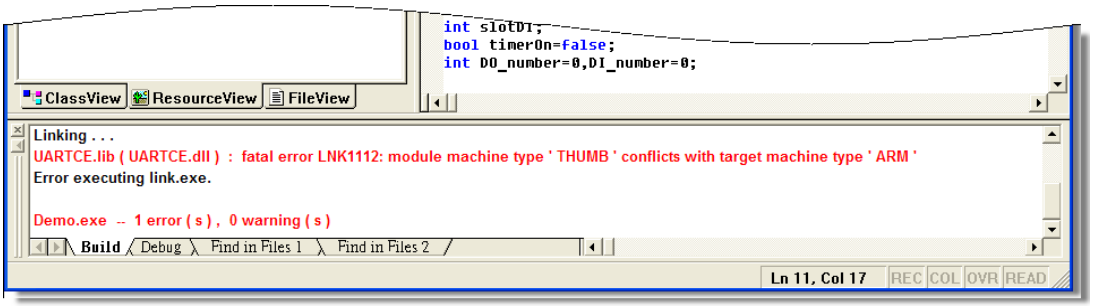
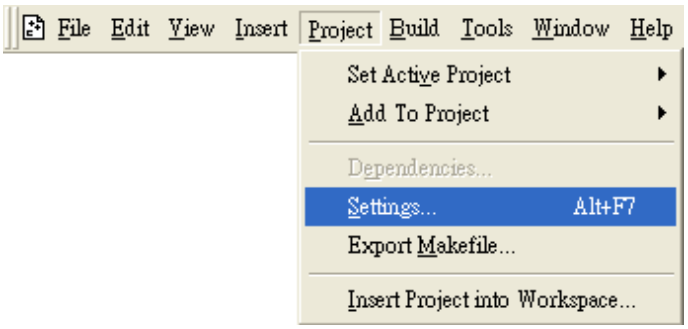
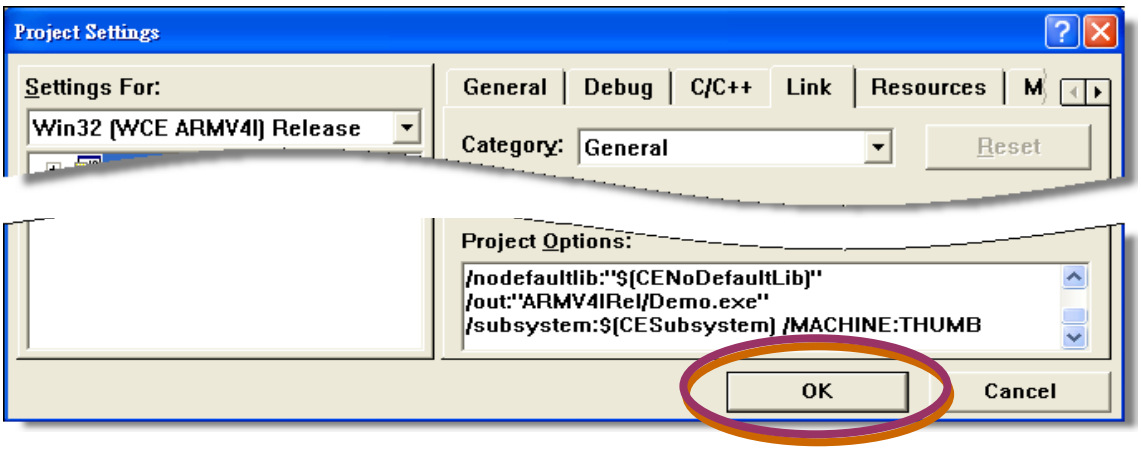
Step 8: After performing above-mentioned steps, build the project, your project should build success. If not, it will show error message as follow. Please continue with the following steps


int slotDI;
bool timerOn=false;
int DO_number=0,DI_number=0;
ClassView
ResourceView
FileView
Linking . . .
UARTCE.lib (UARTCE.dll) : fatal error LNK1112: module machine type ' THUMB ' conflicts with target machine type ' ARM '
Error executing link.exe.
Demo.exe - 1 error (s) , 0 warning (s)
Build
Debug
Find in Files 1
Find in Files 2
Ln 11, Col 17
REC COL OVR READ

Step 9: On the "Project" menu, click "Settings..." command



Step 10: On the "Project Settings" dialog, select the "Link" tab and change the value of the "Project Options" field, "ARM" to "THUMB", and then built the project



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C.4.2. Modify .vcp file to upgrade the old WinCon project

Step 1: Open a text editor to modify the .vcp file

Step 2: In the .vcp file, replace “0xa301” with “0xa501”

Step 3: In the .vcp file, replace “ARMV4” with “ARMV4I”

Step 4: In the .vcp file, replace “MACHINE:ARM” with “MACHINE:THUMB”

Step 5: Save the .vcp file just edited

Step 6: Open the old WinCon project and recompile it

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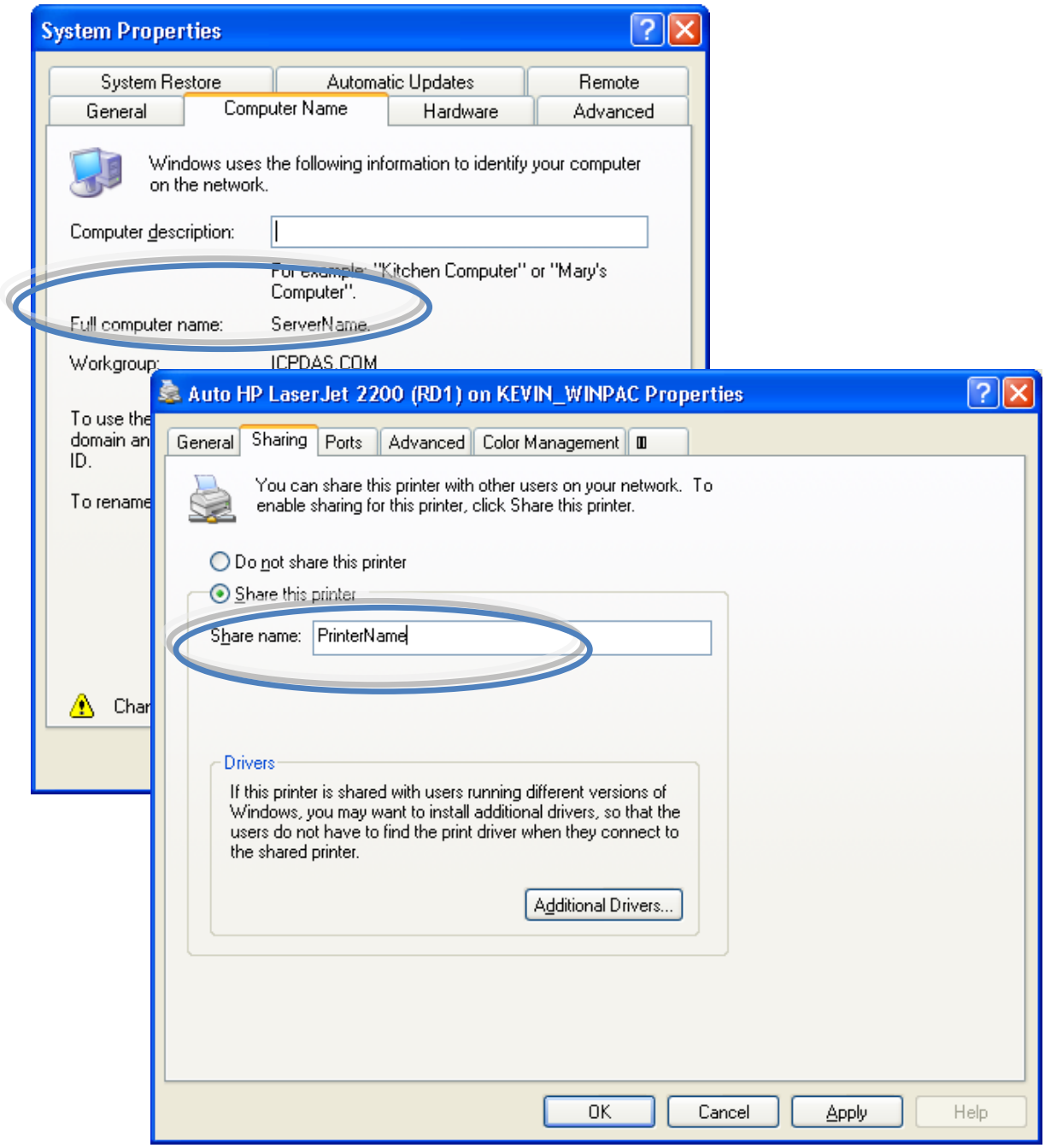
C.5 How to use network printer

To use a shared network printer, please perform the following steps:

Step 1: On the Host PC side, check the name of the Host PC and the shared printer



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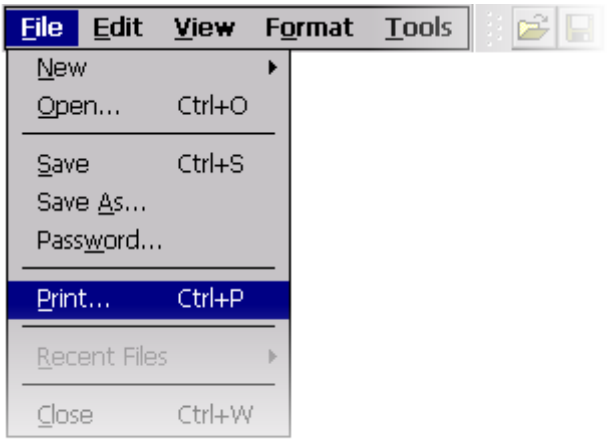
Step 2: On the ViewPAC controller side, open a WordPad format file

Step 3: Select "Print" from File menu



Step 4: Set up the printer

1. PCL Laser

2. Network

3. \\ServerName\PrinterName

The "ServerName" is your PC's name or IP.

The "PrinterName" is your printer's shared name of your PC.

4. Select the paper size

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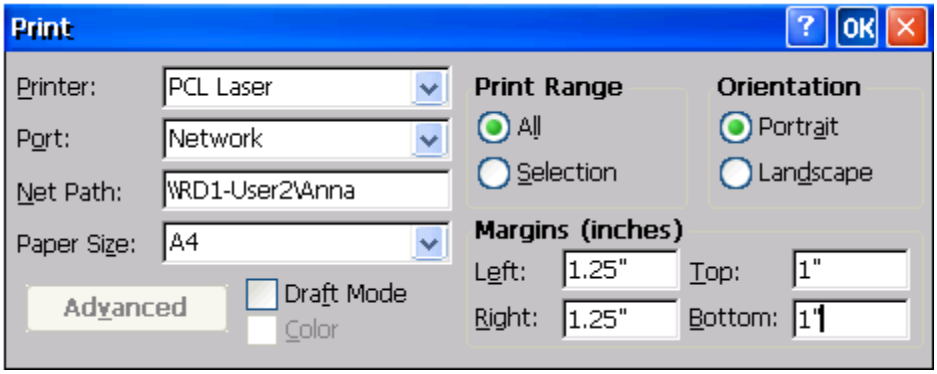

ViewPAC only support HP Laser Jet Printer

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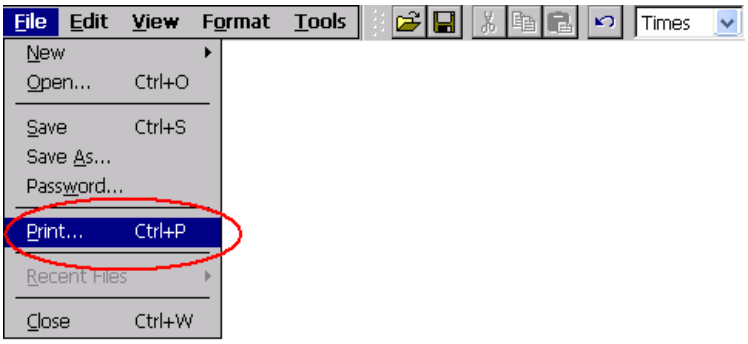
C.6 How to use printer via USB

To use a shared network printer via USB, please perform the following steps:

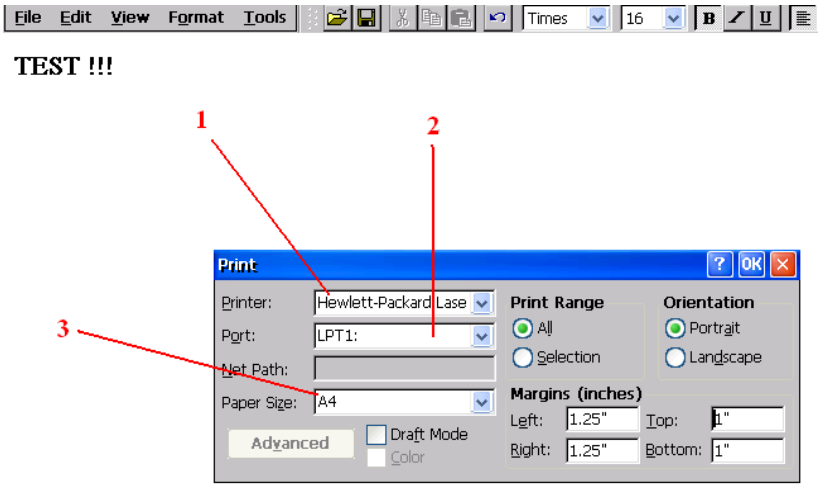
Step 1: On the ViewPAC controller side, open a WordPad format file

Step 2: Select "Print" from File menu



Step 3: Set up the printer

1. Hewlett-Packard LaserJet
2. LPT1:
3. Select the paper size



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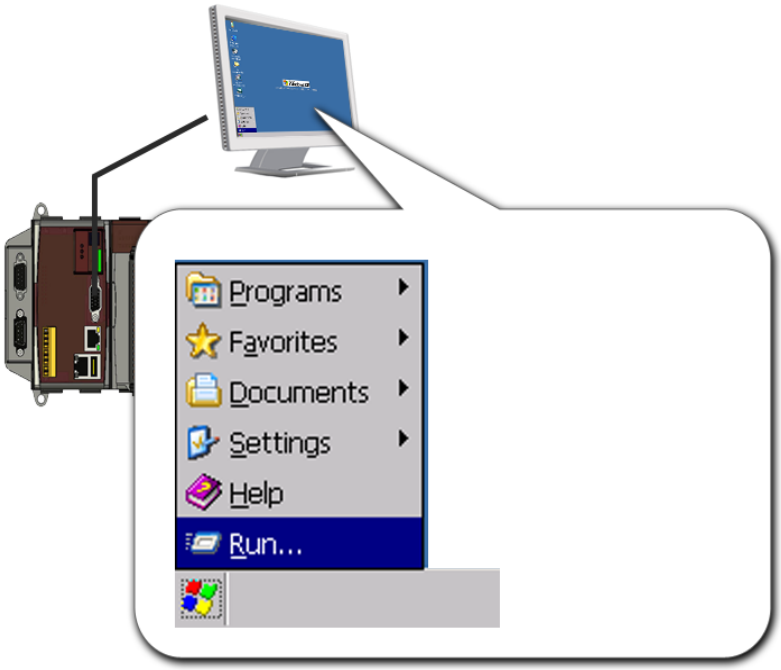
ViewPAC only support HP Laser Jet Printer

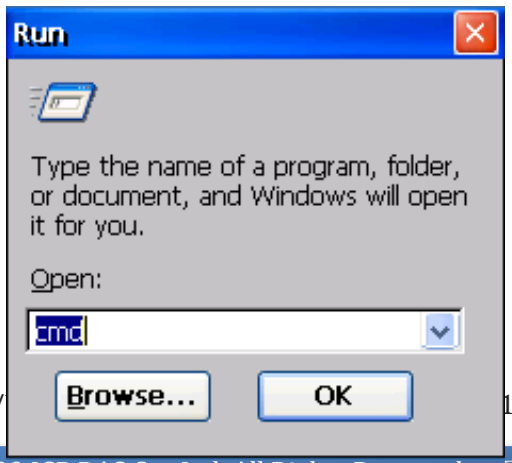
C.7 How to use services tool

The services tool can help you turn on, turn off and monitor the WinCE services.

Step 1: On the ViewPAC controller side, select the " Start" menu, and then click the "Run..." command



Step 2: On the "Run" dialog, type "cmd" in the field and then click the "OK" button



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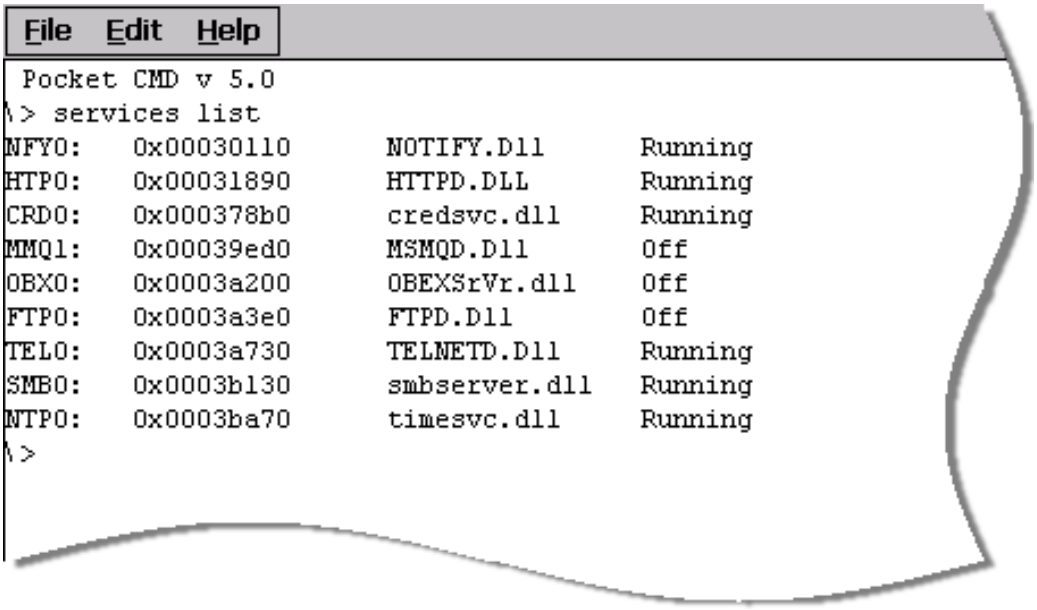
Step 3: On the command prompt, type "services list" to display all services

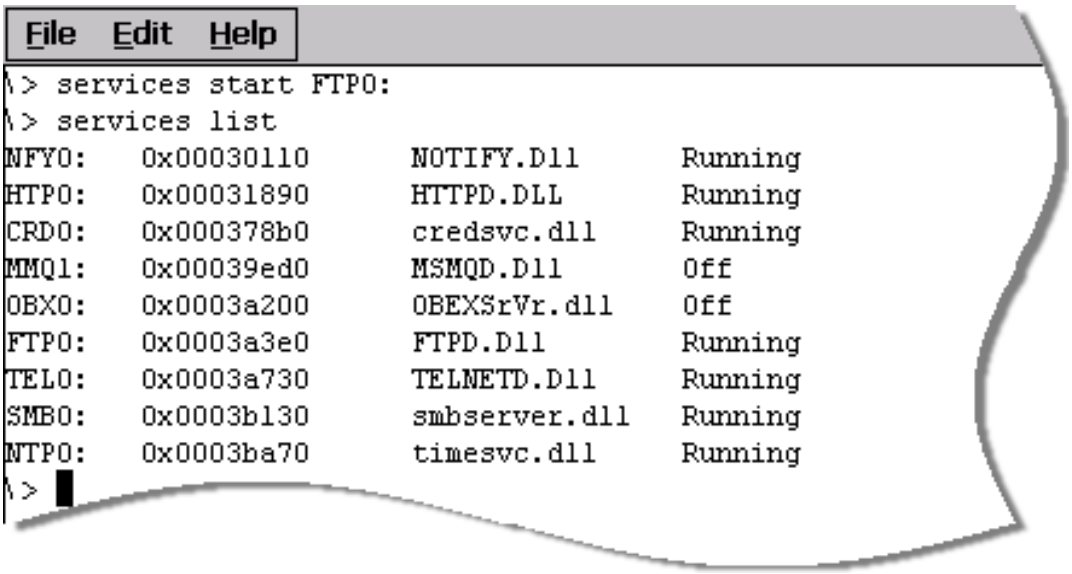


Step 4: Type the commands to configure service

[Syntax] services start <services name>

For example, turn on the "FTP" service:

services start FTP0:



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For more information about using services tool, you just type “services

```
File  Edit  Help
 Pocket CMD v 5.0
\> services help
Commands:
        help - print this text
        list - lists loaded services
        load <service name> - activates a service that is inactive
        stop <service instance> stops/pauses a service (does not unload)
        start <service instance> - starts/resumes a service
        refresh <service instance> - causes service to refresh its config
        unload <service instance> - causes service to be unloaded and removed
        register <service name> - service will be automatically loaded on next r
eboot
        unregister <service name> - service will not be automatically loaded on
next reboot
        command <service name> [argl arg2 ...] - send service-specific command t
o service
        help <service name> - get information on what service-specific commands
are supported

        <service name> - service's name in the registry (i.e. HTTPD)
        <service instance> - particular instantiation (i.e. HTP0:)
Flags:
        -f <file name>
        -s silent
        -d output to debugger
\>
```


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